# CS410 Visual Programming

# **Important mcqs**

# Lec 1 - Windows Programming

1. What is the primary programming language used for Windows Programming?
a) Java
b) C++
c) Python
d) Ruby
Solution: b) C++
2. Which API is commonly used for Windows Programming to access system resources?
a) DirectX
b) WinAPI
c) OpenGL
d) POSIX
Solution: b) WinAPI
3. Which programming framework is often used for Windows desktop applications?
a) .NET Core
b) MFC (Microsoft Foundation Classes)
c) Node.js
d) Django
Solution: b) MFC (Microsoft Foundation Classes)

4. What is the extension for Windows executable files?

a) .exe	
b) .dll	
c) .txt	
d) .bat	
Solution: a) .exe	
5. Which programming	g language is commonly used for Universal Windows Platform (UWP) apps?
a) Swift	
b) Java	
c) C#	
d) Ruby	
Solution: c) C#	
6. Which Windows Pro	gramming component is used for creating graphical user interfaces (GUI)?
a) DirectX	
b) WinForms	
c) Windows Forms	
d) Win32	
Solution: c) Windows	Forms
7. Which Windows ver	sion introduced the Windows Presentation Foundation (WPF) framework?
a) Windows XP	
b) Windows 7	
c) Windows 8	
d) Windows Vista	
Solution: d) Windows	S Vista
8. Which tool is commo	only used for debugging Windows applications?
a) Visual Studio Debu	gger

- b) Eclipse Debugger
- c) GDB (GNU Debugger)
- d) Xcode Debugger

Solution: a) Visual Studio Debugger

- 9. Which Windows Programming approach allows communication between processes running on different machines?
  - a) IPC (Inter-Process Communication)
  - b) RPC (Remote Procedure Call)
  - c) AJAX (Asynchronous JavaScript and XML)
  - d) REST (Representational State Transfer)

**Solution:** b) **RPC** (Remote Procedure Call)

- 10. Which Windows component is used for handling events and messages in GUI applications?
  - a) Message Loop
  - b) Event Loop
  - c) Control Loop
  - d) Polling Loop

Solution: a) Message Loop

# Lec 2 - Basic C Language Concepts

# 1. Question: Which keyword is used to define a constant in C?

- a) const
- b) constant
- c) #define
- d) final

Solution: a) const

# 2. Question: What is the correct syntax to declare a variable in C?

- a) variableName;
- b) int variableName;
- c) variableName = value;
- d) int variableName = value;

Solution: b) int variableName;

# 3. Question: What is the purpose of the "printf" function in C?

- a) To read user input
- b) To display output on the screen
- c) To perform mathematical operations
- d) To initialize a variable

Solution: b) To display output on the screen

# 4. Question: What does the "sizeof" operator return in C?

- a) The size of a variable in bytes
- b) The value of a variable
- c) The data type of a variable
- d) The address of a variable

Solution: a) The size of a variable in bytes

5. Question: How do you declare a pointer variable in C?
a) pointerType variableName;
b) int* variableName;
c) int variableName*;
d) *int variableName;
Solution: b) int* variableName;
6. Question: What is the purpose of the "scanf" function in C?
a) To display output on the screen
b) To read user input
c) To perform mathematical operations
d) To initialize a variable
Solution: b) To read user input
7. Question: Which loop is used to execute a block of code repeatedly as long as the condition is true?
a) for loop
b) while loop
c) do-while loop
d) switch loop
Solution: b) while loop
8. Question: What is the output of the following code snippet?
a) 15
b) 10
c) 5
d) Error
Solution: a) 15

# 9. Question: What is the correct syntax for the ternary operator in C?

- a) x ? y : z;
- b) x : y ? z;
- c) x ? y : : z;
- d): x?yz;

Solution: a) x ? y : z;

# 10. Question: What does the "return" statement do in a function in C?

- a) It declares a variable.
- b) It ends the function's execution.
- c) It performs a conditional check.
- d) It initializes a variable.

Solution: b) It ends the function's execution.

# Lec 3 - Arrays and Pointers

1. Question: In C, how do you declare an integer array named "numbers" with 5 elements?
a) array numbers[5];
b) int numbers[5];
c) int[] numbers = {5};
d) int numbers(5);
Solution: b) int numbers[5];
2. Question: What is the value of the expression "size of (numbers)" in $C$ , where "numbers" is an integer array with 10 elements?
a) 10
b) 40
c) 4
d) 14
Solution: b) 40
3. Question: In C, how do you access the third element of an array named "data"?
a) data(3);
b) data[3];
c) data{3};
d) data.3;
Solution: b) data[3];
4. Question: What is the correct way to pass an array "arr" to a function in C?
a) function(arr);
b) function(arr[]);
c) function(&arr);
d) function(*arr);
Solution: b) function(arr[]);

5. Question: What is a pointer in C?	
a) A variable that stores multiple values	
b) A variable that stores the address of another variable	
c) An array that points to another array	
d) A function that points to another function	
Solution: b) A variable that stores the address of another variable	
6. Question: What does the "*" symbol represent when used with a pointer variab	ole in C?
a) Multiplication	
b) Exponentiation	
c) Address of a variable	
d) Dereferencing the pointer	
Solution: d) Dereferencing the pointer	
7. Question: How do you declare a pointer variable named "ptr" that points to an	integer in C?
a) int* ptr;	
b) ptr* int;	
c) pointer ptr = int;	
d) ptr = int*;	

a) 10

- b) The address of "num"
- c) The address of "ptr"
- d) Garbage value

Solution: b) The address of "num"

- 9. Question: What happens when you increment a pointer in C using "ptr++"?
  - a) The pointer points to the previous element.
  - b) The pointer points to the next element.
  - c) The pointer becomes NULL.
  - d) The pointer points to the first element.

Solution: b) The pointer points to the next element.

- 10. Question: How do you dynamically allocate memory for an integer array "arr" of size 5 in C?
  - a) int arr[5];
  - b) int arr = (int\*)malloc(5);
  - c) int\* arr = new int[5];
  - d) int\* arr = (int\*)malloc(5 \* sizeof(int));

Solution: d) int\* arr = (int\*)malloc(5 \* sizeof(int));

# **Lec 4 - Structures and Unions**

#### 1. What is a structure in C/C++?

- a) A set of related functions
- b) A collection of variables of different data types
- c) A control flow statement
- d) A loop construct

Solution: b) A collection of variables of different data types

# 2. How do you access a member inside a structure in C/C++?

- a) Using the dot (.) operator
- b) Using the arrow (->) operator
- c) Using the at (@) symbol
- d) Using the pound (#) symbol

Solution: a) Using the dot (.) operator

# 3. What is the size of an empty structure in C/C++?

- a) 0 bytes
- b) 1 byte
- c) 4 bytes
- d) Depends on the architecture of the machine

Solution: b) 1 byte

# **4.** What is the purpose of unions in C/C++?

- a) To define custom data types
- b) To group related variables
- c) To save memory by sharing memory among variables
- d) To implement conditional statements

Solution: c) To save memory by sharing memory among variables

# 5. Which operator is used to access a member inside a union in C/C++? a) Dot (.) operator b) Arrow (->) operator c) Colon (:) operator d) Double-colon (::) operator Solution: a) Dot (.) operator 6. What happens if you modify one member of a union and then access another member? a) It is not allowed to modify union members individually b) The other member retains its old value c) It results in an error d) The behavior is undefined **Solution: d) The behavior is undefined** 7. Which statement is true about the alignment of structure members? a) All members are aligned at even memory addresses b) The alignment depends on the order of declaration c) The alignment is automatic and doesn't follow any rule d) The alignment depends on the data type of the members Solution: d) The alignment depends on the data type of the members 8. What is the keyword used to define a union in C/C++? a) class b) structure

c) union

d) typedef

**Solution: c) union** 

#### 9. Can a structure have another structure as its member in C/C++?

- a) Yes, but only one level deep
- b) No, structures cannot have other structures as members
- c) Yes, there is no such limitation
- d) Only if the structure is empty

# Solution: c) Yes, there is no such limitation

# 10. What is the primary difference between a structure and a union in C/C++?

- a) A structure can hold variables of different data types, but a union cannot.
- b) A union can hold variables of different data types, but a structure cannot.
- c) A structure and a union are the same; there is no difference.
- d) The primary difference depends on the programming language being used.

Solution: a) A structure can hold variables of different data types, but a union cannot.

# **Lec 5 - Preprocessor Directives**

# **Question 1:**

Which preprocessor directive is used to include a file in the C/C++ progr
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- A) #include
- B) #define
- C) #ifdef
- D) #ifndef

Solution: A) #include

# **Question 2:**

# What is the purpose of the #ifdef directive in C/C++?

- A) It checks if a macro is defined.
- B) It includes a header file in the program.
- C) It defines a new macro.
- D) It checks if a macro is not defined.

Solution: A) It checks if a macro is defined.

# **Question 3:**

# Which preprocessor directive is used to define a macro in C/C++?

- A) #ifdef
- B) #ifndef
- C) #define
- D) #include

Solution: C) #define

# **Question 4:**

# What does the #ifndef directive do in C/C++?

A) Checks if a macro is defined.

B) Checks if a macro is not defined. C) Includes a header file in the program. D) Defines a new macro. Solution: B) Checks if a macro is not defined. **Question 5:** Which directive is used to concatenate two tokens in C/C++? A) #define B) #ifdef C) ## D) #pragma Solution: C) ## **Question 6:** What is the purpose of the #pragma directive in C/C++? A) To include a header file in the program. B) To define a new macro. C) To check if a macro is defined. D) To provide compiler-specific instructions. Solution: D) To provide compiler-specific instructions. **Question 7:** Which directive is used to undefine a previously defined macro in C/C++? A) #undef B) #pragma C) #ifdef D) #ifndef Solution: A) #undef

Question 8:
What does the #error directive do in C/C++?
A) Includes a header file in the program.
B) Prints an error message during compilation.
C) Checks if a macro is defined.
D) Undefines a previously defined macro.
Solution: B) Prints an error message during compilation.
Question 9:
Which directive is used to include a file only if a certain condition is true in C/C++?
A) #define
B) #error
C) #ifdef
D) #if
Solution: D) #if
Question 10:
What does the #pragma once directive do in C/C++?
A) Includes a header file in the program.

B) Defines a new macro.

C) Prevents multiple inclusions of the same header file.

Solution: C) Prevents multiple inclusions of the same header file.

D) Undefines a previously defined macro.

# **Lec 6 - Bitwise Operators and Macros**

a) 11

b) 12

1. Which bitwise operator in C sets a bit at a specific position?
a) &
b)
c) ^
d) <<
Solution: d) <<
2. What does the bitwise AND operator (&) do when applied to two integers?
a) Returns the minimum value
b) Returns the maximum value
c) Performs a bitwise OR operation
d) Performs a bitwise AND operation
Solution: d) Performs a bitwise AND operation
Solution. u) I criorins a bitwise AND operation
3. Which bitwise operator is used to toggle a specific bit in a number?
a) &
b)
c) ^
d) <<
Solution: c) ^
4. What will be the result of the expression 12   9 in binary?

c) 9
d) 13
Solution: d) 13
5. Which bitwise operator is used to check if a specific bit is set in a number?
a) &
b)
c) ^
d) <<
Solution: a) &
6. What is the result of the expression $5 \ll 2$ ?
a) 10
b) 20
c) 15
d) 25
Solution: b) 20
7. What will be the value of x after the operation: $x = (1 << 3)$ ?
a) 0
b) 1
c) 8
d) 16
Solution: c) 8

#### 8. What does the #define directive do in C?

- a) Defines a new function
- b) Declares a variable
- c) Defines a new data type
- d) Defines a macro

# Solution: d) Defines a macro

# 9. What is the purpose of the #ifdef preprocessor directive?

- a) To check if a function is defined
- b) To include a header file
- c) To define a new macro
- d) To conditionally compile code

# Solution: d) To conditionally compile code

# 10. How can you unset a specific bit in an integer variable 'num' using a macro?

- a) #define UNSET\_BIT(num, bit) num |= (1 << bit)
- b) #define UNSET\_BIT(num, bit) num &= ~(1 << bit)
- c) #define UNSET\_BIT(num, bit) num ^= (1 << bit)
- d) #define UNSET\_BIT(num, bit) num = (1 << bit)

Solution: b) #define UNSET BIT(num, bit) num &=  $\sim$ (1 << bit)

# Lec 7 - Calling Conventions, Storage Classes and Variable Scope \*\*Question 1:\*\* What is a "calling convention" in computer programming? A) A set of rules for naming variables within a function. B) A set of rules for calling functions from different programming languages. C) A set of rules that govern how functions pass arguments and return values. D) A set of rules for defining functions in object-oriented programming. \*\*Solution:\*\* C \*\*Question 2:\*\* Which storage class has a global scope and retains its value across function calls? A) auto B) extern C) static D) register \*\*Solution:\*\* B \*\*Question 3:\*\* What is the default storage class for local variables in most programming languages? A) auto B) static C) register D) extern

**Solution:** A
**Question 4:**
Which storage class is used to define local variables with a lifetime that extends throughout the program's execution?
A) static
B) auto
C) extern
D) register
**Solution:** A
**Question 5:**
In C/C++, what keyword is used to declare a function with a variable number of arguments?
A) varargs
B) vararg
C) stdarg
D) ellipsis
**Solution:** D
**Question 6:**
In the context of function calling conventions, what does "caller-saved" refer to?
A) The caller function is responsible for saving and restoring the registers used by the called function
B) The caller function is responsible for saving and restoring the stack space used by the called

function.

C) The caller function is responsible for saving and restoring its own local variables during the call.
D) The caller function is responsible for saving and restoring the called function's local variables during the call.
**Solution:** A
**Question 7:**
What is the purpose of the "register" storage class?
A) It requests the compiler to allocate a register for the variable for faster access.
B) It indicates that the variable's value is stored in a hardware register.
C) It specifies that the variable can only be used within a specific function.
D) It requests the compiler to optimize the variable for space efficiency.
**Solution:** A
**Question 8:**
Which storage class is commonly used to share variables among multiple source files in C/C++?
A) static
B) extern
C) register
D) const
**Solution:** B
**Question 9:**
What happens to a variable declared with the "static" storage class inside a function?

- A) The variable becomes a global variable.
- B) The variable retains its value across function calls.
- C) The variable is only accessible within the function where it is declared.
- D) The variable is automatically initialized to zero.

# \*\*Solution:\*\* B

\*\*Question 10:\*\*

In C/C++, what is the significance of the "const" storage class for variables?

- A) It ensures that the variable's value cannot be modified after initialization.
- B) It allows the variable to be accessed from any function in the program.
- C) It instructs the compiler to allocate the variable in read-only memory.
- D) It specifies that the variable's value cannot be optimized by the compiler.

\*\*Solution:\*\* A

# **Lec 8 - Windows Basics**

**Question 1:**
Which operating system is developed by Microsoft and widely used in personal computers?
A) macOS
B) Linux
C) Windows
D) Android
**Solution:** C
**Question 2:**
What is the main purpose of the Start menu in Windows?
A) To shut down the computer.
B) To browse the internet.
C) To access various features and installed programs.
D) To customize the desktop wallpaper.
**Solution:** C
**Question 3:**
What does the Taskbar in Windows allow you to do?
A) Access Control Panel settings.
B) Manage installed applications.
C) View and switch between open programs.
D) Search for files on the computer.

**Solution:** C
**Question 4:**  Which Windows feature allows you to run multiple applications simultaneously on the screen?
A) Start menu
B) Taskbar
C) Multitasking
D) Control Panel
**Solution:** C
**Question 5:**
What is the purpose of the system tray (notification area) in Windows?
A) Display the date and time.
B) Launch installed applications.
C) Manage user accounts.
D) Show notifications and provide quick access to system functions.
**Solution:** D
**Question 6:**
Which utility in Windows allows you to uninstall software applications?
A) Control Donal
A) Control Panel  P) Took Manager
B) Task Manager

C) Command Prompt

D) System Configuration
**Solution:** A
**Question 7:**
What is the default web browser in Windows?
A) Safari
B) Edge
C) Firefox
D) Chrome
**Solution:** B
**Question 8:**
What does the "Recycle Bin" in Windows do?
A) Stores temporary files.
B) Holds deleted files until permanently removed.
C) Keeps track of recently accessed documents.
D) Organizes files into categories.
**Solution:** B
**Question 9:**
Which Windows utility is used to check for and install updates to the operating system?
A) Control Panel
B) Task Manager

C) Windows Update D) Disk Cleanup \*\*Solution:\*\* C \*\*Question 10:\*\* How can you access the Control Panel in Windows? A) Right-click on the desktop and select "Control Panel." B) Click on the Start menu and search for "Control Panel." C) Press the Windows key + R and type "control." D) All of the above. \*\*Solution:\*\* D

# Lec 9 - Windows Creation and Message Handling

<b>1.</b> \	What is a	window in	the context	of graphical	user interfaces?
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- a) A type of mouse pointer
- b) A borderless frame
- c) A region on the screen that displays content and can interact with the user
- d) A computer peripheral

# Solution: c) A region on the screen that displays content and can interact with the user

# 2. Which API is commonly used to create windows in Windows OS?

- a) JVM
- b) OpenGL
- c) DirectX
- d) WinAPI

# Solution: d) WinAPI

# 3. What is the primary function of the Window Procedure in Windows programming?

- a) To create a new window
- b) To handle messages and events for a window
- c) To manage the position of the window on the screen
- d) To close an existing window

# Solution: b) To handle messages and events for a window

# 4. Which message is sent to a window when the user clicks a mouse button?

- a) WM\_PAINT
- b) WM\_LBUTTONDOWN

- c) WM\_CLOSE
- d) WM\_KEYDOWN

# Solution: b) WM\_LBUTTONDOWN

# 5. What is the role of the WM\_PAINT message in Windows message handling?

- a) It requests the window to be repainted.
- b) It closes the window.
- c) It resizes the window.
- d) It moves the window to a new position.

# Solution: a) It requests the window to be repainted.

# 6. The WM\_CLOSE message is generated when:

- a) The window is minimized.
- b) The window is closed by the user or system.
- c) The window is moved.
- d) The window is resized.

# Solution: b) The window is closed by the user or system.

# 7. Which message is sent to a window when the user presses a key on the keyboard?

- a) WM\_MOUSEMOVE
- b) WM\_KEYUP
- c) WM\_CHAR
- d) WM\_SIZE

# Solution: c) WM\_CHAR

8. Which Windows function is used to create a new window?
a) CreateWindowEx
b) DrawWindow
c) NewWindow
d) OpenWindow
Solution: a) CreateWindowEx
9. What is the purpose of the LPARAM and WPARAM parameters in the Window Procedure?
a) They hold the window's position and size information.
b) They hold the message-specific information and additional data.
c) They are used to set the window's title.
d) They are used to close the window.
Solution: b) They hold the message-specific information and additional data.
10. When handling a message in the Window Procedure, what should be returned after processing the message?
a) The window handle (HWND)
b) The wParam parameter
c) The message itself
d) 0 (zero)
Solution: d) 0 (zero)

# Lec 10 - Architecture of Standard Win32 Application

1. Question: What is the main entry point for a Win32 application?

a) Main()
b) WinMain()
c) ApplicationMain()
d) Entry()
Solution: b) WinMain()
2. Question: Which library is commonly used for Win32 application development?
a) JavaFX
b) Qt
c) WinAPI
d) GTK
Solution: c) WinAPI
Solution: c) WinAPI
Solution: c) WinAPI  3. Question: The WinMain function receives command line arguments in the form of:  a) An array of integers
3. Question: The WinMain function receives command line arguments in the form of:
3. Question: The WinMain function receives command line arguments in the form of:  a) An array of integers
3. Question: The WinMain function receives command line arguments in the form of:  a) An array of integers  b) A null-terminated string
3. Question: The WinMain function receives command line arguments in the form of:  a) An array of integers  b) A null-terminated string c) An array of characters
3. Question: The WinMain function receives command line arguments in the form of:  a) An array of integers  b) A null-terminated string c) An array of characters
3. Question: The WinMain function receives command line arguments in the form of:  a) An array of integers  b) A null-terminated string  c) An array of characters  d) A pointer to a structure
3. Question: The WinMain function receives command line arguments in the form of:  a) An array of integers  b) A null-terminated string  c) An array of characters  d) A pointer to a structure

b) Process messages sent to the application

c) Handle exceptions and errors d) Allocate memory for window objects Solution: b) Process messages sent to the application 5. Question: How is the message loop typically implemented in a Win32 application? a) using a recursive function b) using a while loop c) using a for loop d) using a switch-case statement Solution: b) using a while loop 6. Question: Which message is commonly used for handling window creation in the Window **Procedure?** a) WM PAINT b) WM\_CREATE c) WM\_DESTROY d) WM\_CLOSE Solution: b) WM\_CREATE 7. Question: The function used to create a new window in a Win32 application is: a) CreateWindow b) CreateWindowEx c) NewWindow d) OpenWindow

Solution: b) CreateWindowEx

8. Question: The window class styles are specified during:
a) Window creation
b) Message loop processing
c) Window destruction
d) Message handling
Solution: a) Window creation
9. Question: How does the application receive messages from the operating system?
a) Through function callbacks
b) Through interrupt requests
c) Through polling the message queue
d) Through direct memory access
Solution: c) Through polling the message queue
10. Question: Which function is used to release the resources associated with a window?
a) UnregisterClass
b) DestroyWindow
c) CloseWindow
d) DisposeWindow

Solution: b) DestroyWindow

# Lec 11 - User Interfaces

1. Question: What does UI stand for in software development?
a) User Interface
b) User Interaction
c) User Integration
d) Universal Integration
Solution: a) User Interface
2. Question: Which UI component is used to receive text input from the user?
a) Label
b) Button
c) Textbox
d) Checkbox
Solution: c) Textbox
3. Question: What is the primary purpose of a dropdown menu in a UI?
a) Display images
b) Display information
c) Show notifications
d) Provide a list of options
Solution: d) Provide a list of options
4. Question: Which UI element typically represents an action that users can trigger?
a) Label
b) Checkbox

c) Button d) Radio button **Solution: c) Button** 5. Question: What is the function of a progress bar in a UI? a) Display loading images b) Show the progress of an ongoing task c) Indicate errors d) Play multimedia content Solution: b) Show the progress of an ongoing task 6. Question: Which UI component is used to display messages or information to users? a) Checkbox b) Label c) Textbox d) Dropdown menu **Solution: b) Label** 7. Question: What is the primary role of a tooltip in a UI? a) Provide navigation options b) Display additional information on hover c) Trigger background processes d) Play audio feedback

Solution: b) Display additional information on hover

8. Question: Which UI component allows users to select multiple items from a list?
a) Radio button
b) Checkbox
c) Textbox
d) Dropdown menu
Solution: b) Checkbox
9. Question: What is the purpose of validation in UI design?
a) Enhance the visual appeal
b) Improve performance
c) Ensure data accuracy and integrity
d) Enable voice commands
Solution: c) Ensure data accuracy and integrity
10. Question: Which UI design principle focuses on arranging elements based on their importance or sequence?
a) Alignment
b) Proximity
c) Hierarchy
d) Contrast
Solution: c) Hierarchy

#### Lec 12 - Window Classes

# 1. What is a window class in graphical user interface programming?

- a) A specific type of window used for complex animations.
- b) A set of predefined windows provided by the operating system.
- c) A template that defines the structure and behavior of windows.
- d) A unique identifier assigned to each window in an application.

# Solution: c) A template that defines the structure and behavior of windows.

# 2. Which function is used to register a window class in Windows API?

- a) CreateWindowEx()
- b) RegisterWindowClass()
- c) CreateWindowClass()
- d) RegisterClass()

# Solution: d) RegisterClass()

#### 3. What is the purpose of the window procedure in a window class?

- a) To register the window class with the operating system.
- b) To handle messages and events for the window.
- c) To create child windows within the main window.
- d) To set the initial style and attributes of the window.

# Solution: b) To handle messages and events for the window.

# 4. How are window classes identified in an application?

- a) By a unique name string.
- b) By a numeric identifier assigned at runtime.

- c) By their position on the screen.
- d) By the color of the window's title bar.

#### Solution: a) By a unique name string.

#### 5. What is the purpose of the "hInstance" parameter in the RegisterClass function?

- a) To specify the window's width and height.
- b) To pass a handle to the application's instance.
- c) To set the window's background color.
- d) To enable mouse interactions for the window.

#### Solution: b) To pass a handle to the application's instance.

#### 6. How does a window procedure process messages in Windows API?

- a) By writing messages to a log file.
- b) By using a message queue for incoming messages.
- c) By displaying messages in a pop-up dialog.
- d) By forwarding messages to other windows.

#### Solution: b) By using a message queue for incoming messages.

#### 7. What happens if a window class is unregistered before creating windows?

- a) Windows created with that class will become invisible.
- b) The application will crash when trying to create a window.
- c) The window class can never be registered again.
- d) Existing windows of that class will still be usable.

#### Solution: b) The application will crash when trying to create a window.

#### 8. How can you change the style of a window after it has been created using a window class?

- a) By directly modifying the window's structure.
- b) By re-registering the window class with a new style.
- c) By using the SetWindowStyle function.
- d) By destroying the window and creating a new one.

#### Solution: d) By destroying the window and creating a new one.

#### 9. How does a window procedure handle the WM\_DESTROY message?

- a) By creating a new window in its place.
- b) By freeing resources and cleaning up the window.
- c) By resizing the window to its default size.
- d) By changing the window's title text.

#### Solution: b) By freeing resources and cleaning up the window.

#### 10. What is the purpose of the "lpParam" parameter in the CreateWindowEx function?

- a) To pass user-defined data to the window procedure.
- b) To specify the window's position on the screen.
- c) To set the initial width and height of the window.
- d) To enable or disable specific window features.

#### Solution: a) To pass user-defined data to the window procedure.

Lec 15 - Graphics Device Interface
1. What does GDI stand for in computer graphics?
a) Graphics Design Interface
b) Graphics Display Interface
c) Graphical Device Interface
d) Graphical Display Interface
Solution: c) Graphical Device Interface
2. Which Windows API provides functions for 2D drawing and font rendering?
a) GDI
b) GUI
c) API
d) DirectX
Solution: a) GDI
3. Which GDI function is used to draw lines on the screen?
a) DrawLine()
b) LineTo()
c) DrawPath()
d) DrawSegment()

### 4. What is the purpose of the SelectObject function in GDI?

a) To select a font for drawing text.

Solution: b) LineTo()

b) To select a color for filling shapes.

c) To select a pen or brush for drawing operations. d) To select a file for image loading. Solution: c) To select a pen or brush for drawing operations. 5. Which GDI function is used to draw text on the screen? a) DrawText() b) TextOut() c) WriteText() d) PrintText() **Solution:** b) **TextOut()** 6. Which GDI object is used to store graphical images? a) Pen b) Brush c) Bitmap d) Font Solution: c) Bitmap 7. What is the purpose of the StretchBlt function in GDI? a) To draw a filled rectangle. b) To resize an image. c) To draw an elliptical shape. d) To draw text in bold format. Solution: b) To resize an image.

8. Which GDI function is used to create a custom color brush?
a) CreateSolidBrush()
b) CreatePatternBrush()
c) CreateColorBrush()
d) CreateCustomBrush()
Solution: a) CreateSolidBrush()
9. How is transparency achieved in GDI?
a) By using the SetTransparent function.
b) By selecting a transparent color.
c) GDI does not support transparency.
d) By using the SetLayeredWindowAttributes function.
Solution: d) By using the SetLayeredWindowAttributes function.
10. Which GDI function is used to draw an arc?
a) DrawArc()
b) ArcTo()
c) Arc()
d) ArcSegment()
Solution: c) Arc()

# **Lec 14 - Painting and Drawing**

. Which art form involves creating visual representations using brushes and pigments on can	vas?
a) Painting	
b) Drawing	
c) Sculpture	
d) Pottery	
Solution: a) Painting	
2. What is the primary medium used in drawing?	
a) Charcoal	
b) Oil paint	
c) Watercolor	
d) Acrylic paint	
Solution: a) Charcoal	
3. Which art form typically uses pencils, ink, or charcoal on paper?	
a) Painting	
b) Drawing	
c) Sculpture	
d) Photography	
Solution: b) Drawing	
I. What is the primary tool used in painting?	
a) Pencil	
b) Brush	

c) Chisel
d) Sculpting tool
Solution: b) Brush
5. Which art form involves shaping and manipulating materials like clay or stone?
a) Painting
b) Drawing
c) Sculpture
d) Photography
Solution: c) Sculpture
6. Which medium is known for its quick-drying properties and versatility in painting?
a) Oil paint
b) Watercolor
c) Acrylic paint
d) Ink
Solution: c) Acrylic paint
7. What is the technique of shading in drawing called, where darker areas are represented by closely spaced lines?
a) Hatching
b) Stippling
c) Blending
d) Cross-hatching
Solution: a) Hatching

8. What is the process of adding water to watercolor paint to achieve lighter tones?
a) Diluting
b) Mixing
c) Blending
d) Wash
Solution: a) Diluting
9. Which art form involves capturing images using a camera or other photographic equipment?
a) Painting
b) Drawing
c) Sculpture
d) Photography
Solution: d) Photography
10. Which medium provides a unique texture and effect when applied to a painting surface?
a) Watercolor
b) Oil paint
c) Pastels
d) Acrylic paint
Solution: c) Pastels

# Lec 15 - Windows Management \*\*Question 1:\*\* Which Windows tool is used to view and manage running processes? A) System Monitor B) Task Manager C) Event Viewer D) Registry Editor \*\*Solution:\*\* B) Task Manager \*\*Question 2:\*\* Which Windows feature is used for organizing files and folders in a hierarchical structure? A) Taskbar B) Start Menu C) File Explorer D) Control Panel \*\*Solution:\*\* C) File Explorer

Which Windows utility is used to schedule automatic maintenance tasks such as software updates and disk optimization?

A) System Restore

\*\*Question 3:\*\*

B) Windows Defender

C) Action Center
D) Task Scheduler
**Solution:**
D) Task Scheduler
**Question 4:**
Which Windows component is responsible for managing hardware and software settings, user accounts, and system security?
A) Device Manager
B) Control Panel
C) Registry Editor
D) Security Center
**Solution:**
C) Registry Editor
**Question 5:**
Which Windows tool provides a real-time graphical representation of system performance and resource usage?
A) Performance Monitor
B) Resource Monitor
C) Task Manager
D) Disk Cleanup
**Solution:**
B) Resource Monitor

Which Windows feature allows multiple users to work on the same computer while keeping their settings and data separate?
A) User Account Control (UAC)
B) Guest Account
C) Fast User Switching
D) System Restore
**Solution:**
C) Fast User Switching
**Question 7:**
Which Windows utility is used to create and manage network connections, including Wi-Fi and Ethernet?
A) Network and Sharing Center
B) Device Manager
C) Task Manager
D) Windows Firewall
**Solution:**
A) Network and Sharing Center
**Question 8:**
Which Windows tool provides a central location for configuring and customizing various system settings?
A) Control Danal
A) Control Panel B) Task Manager
D) Lask Manager

\*\*Question 6:\*\*

C) Disk Cleanup
D) Windows Defender
**Solution:**
A) Control Panel
**Question 9:**
Which Windows feature provides a way to revert the system to a previous state in case of issues?
A) Action Center
B) System Restore
C) Task Scheduler
D) Disk Cleanup
**Solution:**
B) System Restore
**Question 10:**
Which Windows component is responsible for managing user authentication and access to resources on a network?
A) Network and Sharing Center
B) Windows Defender
C) User Account Control (UAC)
D) Active Directory
**Solution:**
D) Active Directory

### **Lec 16 - Input Devices**

1. Question: Which input device is commonly used for pointing and clicking on a computer screen?
a) Keyboard
b) Touchscreen
c) Mouse
d) Joystick
Solution: c) Mouse
2. Question: Which input device uses pressure-sensitive technology for precise drawing and design work?
a) Keyboard
b) Stylus
c) Trackball
d) Gamepad
Solution: b) Stylus
3. Question: Which input device is used primarily for capturing images and documents?
a) Webcam
b) Scanner
c) Microphone
d) Touchpad
Solution: b) Scanner
4. Question: A touch-sensitive display that allows users to interact directly with the screen is called a:
a) Trackpad
b) Joystick
c) Touchscreen
d) Keyboard
Solution: c) Touchscreen

5. Question: Which input device is designed to detect and record sound waves?
a) Speaker
b) Microphone
c) Barcode reader
d) Game controller
Solution: b) Microphone
6. Question: What input device is commonly used for capturing handwriting and signatures?
a) Touchscreen
b) Trackball
c) Pen Tablet
d) Joystick
Solution: c) Pen Tablet
${\bf 7.\ Question:\ Which\ device\ uses\ light\ and\ sensors\ to\ read\ barcodes\ and\ enter\ data\ into\ a\ computer\ system?}$
a) Microphone
b) Barcode Reader
c) Mouse
d) Stylus
Solution: b) Barcode Reader
8. Question: Which input device allows users to input commands by speaking?
a) Keyboard
b) Mouse
c) Touchpad
d) Voice Recognition System
Solution: d) Voice Recognition System

9. Question: What input device is used for capturing video footage and live streaming?
a) Webcam
b) Scanner
c) Touchscreen
d) Joystick
Solution: a) Webcam
10. Question: Which input device is used for gaming and controlling characters within video games?
a) Printer
b) Trackpad
c) Gamepad
d) Touchscreen
Solution: c) Gamepad

# Lec 17 - Resources \*Question 1:\*\* Which type of resource is sunlight? A) Renewable resource B) Non-renewable resource C) Human-made resource D) Inexhaustible resource \*\*Solution:\*\* A) Renewable resource \*\*Question 2:\*\* Which is an example of a non-renewable resource? A) Wind energy B) Solar energy C) Natural gas D) Biomass \*\*Solution:\*\* C) Natural gas \*\*Question 3:\*\* What is the primary source of energy for fossil fuels? A) Wind B) Sun C) Water D) Earth's core

\*\*Solution:\*\* B) Sun

**Question 4:**
Which resource is considered an abiotic factor?
A) Plants
B) Animals
C) Water
D) Soil
**Solution:** D) Soil
**Question 5:**
Which resource plays a vital role in sustainable agriculture?
A) Pesticides
B) Synthetic fertilizers
C) Biodiversity
D) Monoculture
**Solution:** C) Biodiversity
**Question 6:**
Which type of resource is coal?
A) Renewable resource
B) Non-renewable resource
C) Recyclable resource
D) Natural resource
**Solution:** B) Non-renewable resource
**Question 7:**

What is the main advantage of hydroelectric power?

A) Minimal environmental impact
B) High energy efficiency
C) Abundant fuel supply
D) Cost-effectiveness
**Solution:** B) High energy efficiency
**Question 8:**
Which resource is most directly responsible for climate change?
A) Wind energy
B) Solar energy
C) Fossil fuels
D) Geothermal energy
**Solution:** C) Fossil fuels
**Solution:** C) Fossil fuels
**Solution:** C) Fossil fuels  **Question 9:**
**Question 9:**
**Question 9:**  What is an example of a sustainable use of water resources?
**Question 9:**  What is an example of a sustainable use of water resources?  A) Excessive irrigation
**Question 9:**  What is an example of a sustainable use of water resources?  A) Excessive irrigation  B) Industrial pollution
**Question 9:**  What is an example of a sustainable use of water resources?  A) Excessive irrigation  B) Industrial pollution  C) Water conservation practices
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**Question 9:**  What is an example of a sustainable use of water resources?  A) Excessive irrigation  B) Industrial pollution  C) Water conservation practices  D) Open dumping of waste
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**Question 9:**  What is an example of a sustainable use of water resources?  A) Excessive irrigation  B) Industrial pollution  C) Water conservation practices  D) Open dumping of waste  **Solution:** C) Water conservation practices

B) Inexhaustible resource

- C) Renewable resource
- D) Synthetic resource

\*\*Solution:\*\* B) Inexhaustible resource

# Lec 18 - String and Menu Resources \*\*Ouestion 1:\*\* In Android app development, what is the primary purpose of using string resources? A) Storing images B) Handling user inputs C) Localization and text management D) Creating animations \*\*Solution: \*\* C) Localization and text management \*\*Question 2:\*\* Which XML file is commonly used to define string resources in an Android app? A) `strings.xml` B) `layout.xml` C) `strings\_resources.xml` D) `text.xml` \*\*Solution:\*\* A) `strings.xml` \*\*Question 3:\*\* What is the benefit of using string resources over hardcoding text directly in code? A) String resources improve app performance B) String resources make the code shorter

C) String resources allow for easy localization and updates

\*\*Solution: \*\* C) String resources allow for easy localization and updates

D) String resources enable offline functionality

In Android, which resource is used to define the structure and content of app menus?
A) `layout.xml`
B) `menu.xml`
C) `string.xml`
D) `menu_layout.xml`
**Solution:** B) `menu.xml`
**Question 5:**
What is the purpose of using menu resources in Android apps?
A) Displaying images
B) Handling user gestures
C) Organizing navigation and actions
D) Playing audio files
**Solution:** C) Organizing navigation and actions
**Question 6:**
In Android, how are string resources typically accessed in Java/Kotlin code?
A) Using the `R.layout` class
B) Using the `R.menu` class
C) Using the `R.string` class
D) Using the `R.drawable` class
**Solution:** C) Using the `R.string` class
**Question 7:**
Which attribute is used in menu resources to associate an action with a menu item?

\*\*Question 4:\*\*

A) `click`
B) `action`
C) `id`
D) `link`
**Solution:** C) `id`
**Question 8:**
What is the purpose of defining string resources for app labels and titles?
A) Enhance app security
B) Improve app performance
C) Enable text-to-speech functionality
D) Facilitate consistent branding and localization
**Solution:** D) Facilitate consistent branding and localization
**Solution:** D) Facilitate consistent branding and localization  **Question 9:**
**Question 9:**
**Question 9:**  Which of the following is NOT a best practice when working with string resources?
**Question 9:**  Which of the following is NOT a best practice when working with string resources?  A) Hardcoding all text directly in code
**Question 9:**  Which of the following is NOT a best practice when working with string resources?  A) Hardcoding all text directly in code  B) Defining all app text in the `strings.xml` file
**Question 9:**  Which of the following is NOT a best practice when working with string resources?  A) Hardcoding all text directly in code  B) Defining all app text in the `strings.xml` file  C) Using string placeholders for dynamic content
**Question 9:**  Which of the following is NOT a best practice when working with string resources?  A) Hardcoding all text directly in code  B) Defining all app text in the `strings.xml` file  C) Using string placeholders for dynamic content
**Question 9:**  Which of the following is NOT a best practice when working with string resources?  A) Hardcoding all text directly in code  B) Defining all app text in the `strings.xml` file  C) Using string placeholders for dynamic content  D) Providing translations for different languages
**Question 9:**  Which of the following is NOT a best practice when working with string resources?  A) Hardcoding all text directly in code  B) Defining all app text in the `strings.xml` file  C) Using string placeholders for dynamic content  D) Providing translations for different languages
**Question 9:**  Which of the following is NOT a best practice when working with string resources?  A) Hardcoding all text directly in code  B) Defining all app text in the `strings.xml` file  C) Using string placeholders for dynamic content  D) Providing translations for different languages  **Solution:** A) Hardcoding all text directly in code

B) It assigns a unique identifier to the string resource

- C) It controls the visibility of the string
- D) It defines the font style of the string

\*\*Solution:\*\* B) It assigns a unique identifier to the string resource

### Lec 19 - Menu and Dialogs

D) Action bar

**Question 1:** What is the primary purpose of a context menu in a graphical user interface (GUI)?
**Options:**
A) Display advertising content
B) Provide navigation links
C) Present contextual options
D) Show system notifications
**Solution:** C) Present contextual options
**Question 2:** Which type of dialog is used to request user input or information in a GUI?
**Options:**
A) Context menu
B) Confirmation dialog
C) File dialog
D) Toast notification
**Solution:** B) Confirmation dialog
**Question 3:** In a mobile app, which UI element typically contains options accessible through a swipe-down gesture?
**Options:**
A) Context menu
B) Dropdown menu
C) Navigation bar

**Question 4:** What is the purpose of a modal dialog in a software application?
**Options:**
A) Display advertisements
B) Interrupt user workflow
C) Provide navigation links
D) Show real-time data updates
**Solution:** B) Interrupt user workflow
**Question 5:** Which type of menu remains hidden until the user activates it, often by clicking or hovering over a specific element?
**Options:**
A) Context menu
B) Dropdown menu
C) Toolbar menu
D) Docked menu
**Solution:** B) Dropdown menu
**Question 6:** Which dialog box is commonly used to save or open files in an application?
**Options:**
A) Context dialog
B) Options dialog

\*\*Solution:\*\* A) Context menu

C) File dialog
D) Modal dialog
**Solution:** C) File dialog
**Question 7:** What is the purpose of a navigation drawer in a mobile app?
**Options:**
A) Display notifications
B) Show contextual options
C) Provide app settings
D) Offer navigation between screens
**Solution:** D) Offer navigation between screens  **Question 8:** In a web application, what type of menu is typically displayed horizontally at the top of the page?
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**Question 8:** In a web application, what type of menu is typically displayed horizontally at the top of the page?  **Options:**
**Question 8:** In a web application, what type of menu is typically displayed horizontally at the top of the page?  **Options:**  A) Context menu  B) Dropdown menu  C) Sidebar menu
**Question 8:** In a web application, what type of menu is typically displayed horizontally at the top of the page?  **Options:**  A) Context menu  B) Dropdown menu
**Question 8:** In a web application, what type of menu is typically displayed horizontally at the top of the page?  **Options:**  A) Context menu  B) Dropdown menu  C) Sidebar menu
**Question 8:** In a web application, what type of menu is typically displayed horizontally at the top of the page?  **Options:**  A) Context menu  B) Dropdown menu  C) Sidebar menu  D) Mega menu

A) Provide navigation links
B) Display contextual options
C) Show real-time data updates
D) Request user confirmation
**Solution:** C) Show real-time data updates
**Question 10:** Which type of menu is often used to provide a list of available actions related to a
selected item?
**Options:**
· Options. ·
A) Context menu
B) Dropdown menu
C) Toolbar menu
D) Docked menu
**Solution:** A) Context menu

# Lec 20 - Dialogs

**Question 1:** What is the primary purpose of a modal dialog in a software application?
A) Provide real-time updates
B) Display advertisements
C) Require user interaction
D) Show navigation links
**Solution:** C) Require user interaction
**Question 2:** Which type of dialog allows users to interact with other parts of the interface while it is open?
**Options:**
A) Modeless dialog
B) Confirmation dialog
C) Context dialog
D) Information dialog
**Solution:** A) Modeless dialog
**Question 3:** What type of dialog might be used to confirm an irreversible action, like deleting a file?
**Options:**
A) Modeless dialog
B) Confirmation dialog
C) Context dialog
D) Information dialog

# \*\*Solution:\*\* B) Confirmation dialog \*\*Question 4:\*\* In a mobile app, which type of dialog might be used to request permission to access the user's location? \*\*Options:\*\* A) Modeless dialog B) Confirmation dialog C) Permission dialog D) Input dialog \*\*Solution:\*\* C) Permission dialog \*\*Question 5:\*\* What is the purpose of an input dialog in a software application? \*\*Options:\*\* A) Display contextual options B) Show real-time updates C) Request user input D) Provide navigation links \*\*Solution:\*\* C) Request user input \*\*Question 6:\*\* Which type of dialog might be used to display additional information about a feature or function?

\*\*Options:\*\*

A) Context dialog

B) Modeless dialog

C) Information dialog
D) Confirmation dialog
**Solution:** C) Information dialog
**Question 7:** What is the key characteristic of a toast notification in a user interface?
**Options:**
A) Requires user interaction
B) Blocks other interactions
C) Appears as a modal window
D) Brief and unobtrusive message
**Solution:** D) Brief and unobtrusive message
**Question 8:** When might a file dialog be commonly used in a software application?
**Question 8:** When might a file dialog be commonly used in a software application?  **Options:**
**Options:**
**Options:**  A) Confirming an action
**Options:**  A) Confirming an action  B) Providing real-time updates
**Options:**  A) Confirming an action  B) Providing real-time updates  C) Selecting and saving files
**Options:**  A) Confirming an action  B) Providing real-time updates  C) Selecting and saving files  D) Displaying contextual options  **Solution:** C) Selecting and saving files

B) Interrupt user workflow
C) Provide real-time updates
D) Allow interaction with the interface
**Solution:** D) Allow interaction with the interface
**Question 10:** In a web application, what type of dialog might be used to gather user feedback?
**Options:**
A) Feedback dialog
B) Modeless dialog
C) Context dialog
D) Confirmation dialog
**Solution:** A) Feedback dialog

### Lec 21 - Using Dialogs and Windows Controls

**Question 1:** What is the primary purpose of using dialogs in a software application?
**Options:**
A) Provide advertisements
B) Enhance navigation
C) Gather user input
D) Display real-time updates
**Solution:** C) Gather user input
**Question 2:** Which type of dialog requires user interaction before proceeding with a task?
**Options:**
A) Modeless dialog
B) Confirmation dialog
C) Context dialog
D) Information dialog
**Solution:** B) Confirmation dialog
**Question 3:** What do modeless dialogs allow users to do while they are open?
**Options:**
A) Interact with other parts of the interface
B) Display real-time updates
C) Block all interactions
D) Gather user feedback

# \*\*Solution:\*\* A) Interact with other parts of the interface

**Question 4:** What is the purpose of using windows controls in a user interface?
**Options:**
A) Provide advertising content
B) Enhance navigation only
C) Gather user input
D) Aid user interactions and tasks
**Solution:** D) Aid user interactions and tasks
**Question 5:** Which windows control is typically used for selecting dates or times?
**Options:**
A) Dropdown menu
B) Radio button
C) Checkbox
D) Date picker
**Solution:** D) Date picker
**Question 6:** How can checkboxes be used in windows controls?
**Options:**
A) For selecting multiple options
B) For navigation between screens
C) To display real-time updates

D) For confirming irreversible actions
**Solution:** A) For selecting multiple options
**Question 7:** Which windows control is used for entering single-line text input?
**Options:**
A) Text box
B) Radio button
C) Checkbox
D) Dropdown menu
**Solution:** A) Text box
**Question 8:** What is the purpose of using radio buttons in windows controls?
**Options:**
A) Selecting multiple options
B) Displaying real-time updates
C) Allowing free-form text input
D) Selecting a single option from a group
**Solution:** D) Selecting a single option from a group
**Question 9:** What do navigation bars and tabs help achieve in a user interface?
**Question 9:** What do navigation bars and tabs help achieve in a user interface?  **Options:**

C) Enhance navigation and organization
D) Show real-time updates
**Solution:** C) Enhance navigation and organization
**Question 10:** In a software application, what is the purpose of using tooltips with windows controls?
**Options:**
A) Display advertisements
B) Provide real-time updates
C) Offer additional information or context
D) Gather user feedback
**Solution:** C) Offer additional information or context

### **Lec 22 - Using Common Dialogs and Windows Controls**

**Question 1: Which common dialog is used to open and select files from the system?**
A) OpenFileDialog
B) SaveFileDialog
C) PrintDialog
D) ColorDialog
**Solution: A) OpenFileDialog**
**Question 2: Which Windows Control is used to display a list of selectable items in a dropdown menu?**
A) ComboBox
B) ListBox
C) RadioButton
D) CheckBox
**Solution: A) ComboBox**
**Question 3: Which common dialog is used to pick colors in an application?**
A) OpenFileDialog
B) SaveFileDialog
C) PrintDialog
D) ColorDialog
**Solution: D) ColorDiolog**

A) TextBox
B) PictureBox
C) Label
D) Button
**Solution: B) PictureBox**
**Question 5: Which common dialog is used to save files with a specified name and location?**
A) OpenFileDialog
B) SaveFileDialog
C) PrintDialog
D) ColorDialog
**Solution: B) SaveFileDialog**
**Question 6: Which Windows Control allows users to select multiple options from a list?**
A) ComboBox
B) ListBox
C) RadioButton
D) CheckBox
**Solution: B) ListBox**
**Question 7: Which common dialog is used to set print options before printing a document?**

\*\*Question 4: Which Windows Control is used to display images in an application?\*\*

A) OpenFileDialog
B) SaveFileDialog
C) PrintDialog
D) ColorDialog
**Solution: C) PrintDialog**
**Question 8: Which Windows Control is used to display a single-line text input field?**
A) Carrila Dara
A) ComboBox
B) ListBox
C) TextBox
D) CheckBox
**Solution: C) TextBox**
**Question 9: Which common dialog is used to select folders/directories from the system?**
A) OpenFileDialog
B) SaveFileDialog
C) FolderBrowserDialog
D) ColorDialog
**Solution: C) FolderBrowserDialog**
**Question 10: Which Windows Control is used to display a binary on/off choice?**
A) ComboBox
B) ListBox

- C) RadioButton
- D) CheckBox

\*\*Solution: D) CheckBox\*\*