

# 21 Lecture - CS402

## Important Subjective

### 1. What is a Mealy machine?

Answer: A Mealy machine is a type of Finite State Machine in which the outputs are a function of both the current state and the input symbol.

### What is the primary difference between a Mealy machine and a Moore machine?

Answer: The primary difference is that the output in a Mealy machine is produced at the transitions between states, while in a Moore machine, the output is generated only based on the current state.

### What is the purpose of the output function in a Mealy machine?

Answer: The output function in a Mealy machine is used to perform some action based on the input, such as generating an output signal.

### How many types of Mealy machines are there?

Answer: There is only one type of Mealy machine.

### Can the output of a Mealy machine depend on the future input?

Answer: No, the output of a Mealy machine cannot depend on the future input.

### What is the state transition function in a Mealy machine used for?

Answer: The state transition function in a Mealy machine is used to determine the next state based on the current state and input symbol.

### What is the difference between the input alphabet and the output alphabet in a Mealy machine?

Answer: The input alphabet is the set of input symbols that the machine accepts, while the output alphabet is the set of symbols that the machine can generate as output.

### How is a Mealy machine represented?

Answer: A Mealy machine is represented as a directed graph, where the nodes represent the states, and the edges represent the transitions between states.

### What is the purpose of the initial state in a Mealy machine?

Answer: The initial state is the starting point of the machine, and it is used to determine the first output.

### What is the computational power of a Mealy machine compared to a Turing machine?

Answer: A Mealy machine is less powerful than a Turing machine, as it can only recognize regular languages.