	Bansilal Ramnath Agarwal Charitable Trust's Vishwakarma Institute of Information Technology **Department of Artificial Intelligence and Data Science**

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Class: SY	**Division:** B	**Roll No:** 272028
Semester: 4th	**Academic Year:** 2022-23	
Subject Name & Code: Software Engineering, ADUA22204		
Title of Assignment: Assignment No. 6: Derive the use cases based on the requirements from CPS and draw the State Diagram.		
Date of Performance: 16-04-2023	**Date of Submission:** 25-04-2023	

Aim: Derive the use cases based on the requirements from CPS and draw the State Diagram.

Software Requirement: Wondershare EdrawMax

SE Assignment no 6

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* State Diagram: –

1. Need and use of state diagram: –

Ans 1. A state diagram, also known as a state machine, is a visual representation of the behaviour of a system or process.

2. It is used to model the state of a system and the transition between them.
3. State diagrams are often used in software engineering, control engineering, and other field to model complex system and process.
4. The primary use of a state diagram is to describe the behaviour of a system in a clear and concise way.
5. It can be used to model everything from simple system, such as a vending machine, to complex system, such as a computer operating system.
6. State diagram help to identify the different state of a system and the transition b/w them, making it easier to understand the behaviour of the system as a whole.

* some of the benefit of using a state diagram include :–

1) clarity
2) communication
3) Design
4) Testing.

2) What are component of state diagram?

Ans The main component of a state diagram are:-

1. States: A state represent a condition or mode in which a system can exist. It is represented by a circle or rounded rectangle with the name of the state written inside

2. Transition: Transition represent the movement of a system from one state to another. They are represented by arrows that connect the state and are labelled with the event that triggers the transition

3. Events: An event is a triggers that cause a transition between state. event are represented by label on the transition

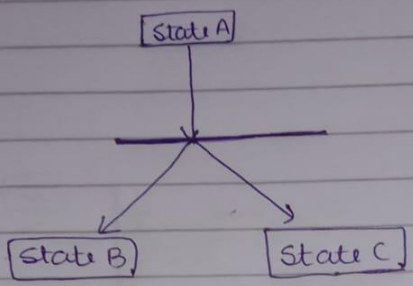
4. Actions: Actions represent the activities that occur when a transition is made from one state to another. They are typically depicted as a label or series of labels near the transition arrows.

5. Initial state: The initial state is the state in which the system begin its operation. It is represented by a filled in circle or black dot.

6. Final state: The final state is the state in which the system begins its operation & stops operating. It is represented by a circle with a dot inside.

Together, these component provide a visual representation of the behavior of a system, making it easier to understand and analyze.

7 Fork: We use a rounded solid rectangular bar to represent a fork notation with incoming arrow from the parent state and outgoing arrow towards the newly created states.



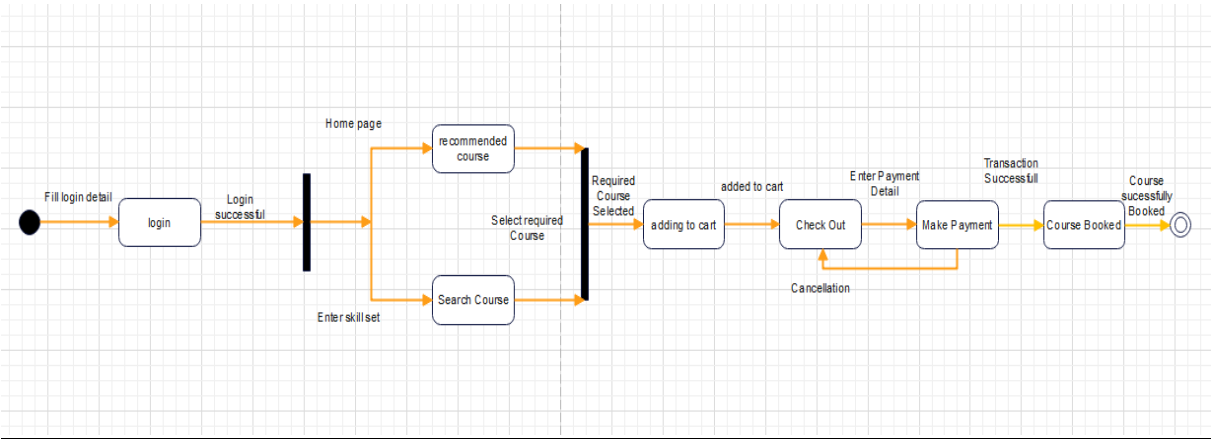
8. Join: We use a rounded solid rectangular bar to represent a join notation with incoming arrow from the joining state and outgoing arrow toward the common goal state.

Pranjali
25/4/23

Result of Experimentation:

CPS: Student finding Courses to learn different skills.

- **STATE DIAGRAM**



Conclusion: Thus, we were able to understand the concept of State Diagram and we have implemented it through our given Customer Problem Statement (CPS).