GOVERNMENT POLYTECHNIC PUNE

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PRACTICAL 5

Aim :-

Develop class diagram, Sequence diagram, Activity diagram, State Transition diagram for assigned project (Resume Builder).

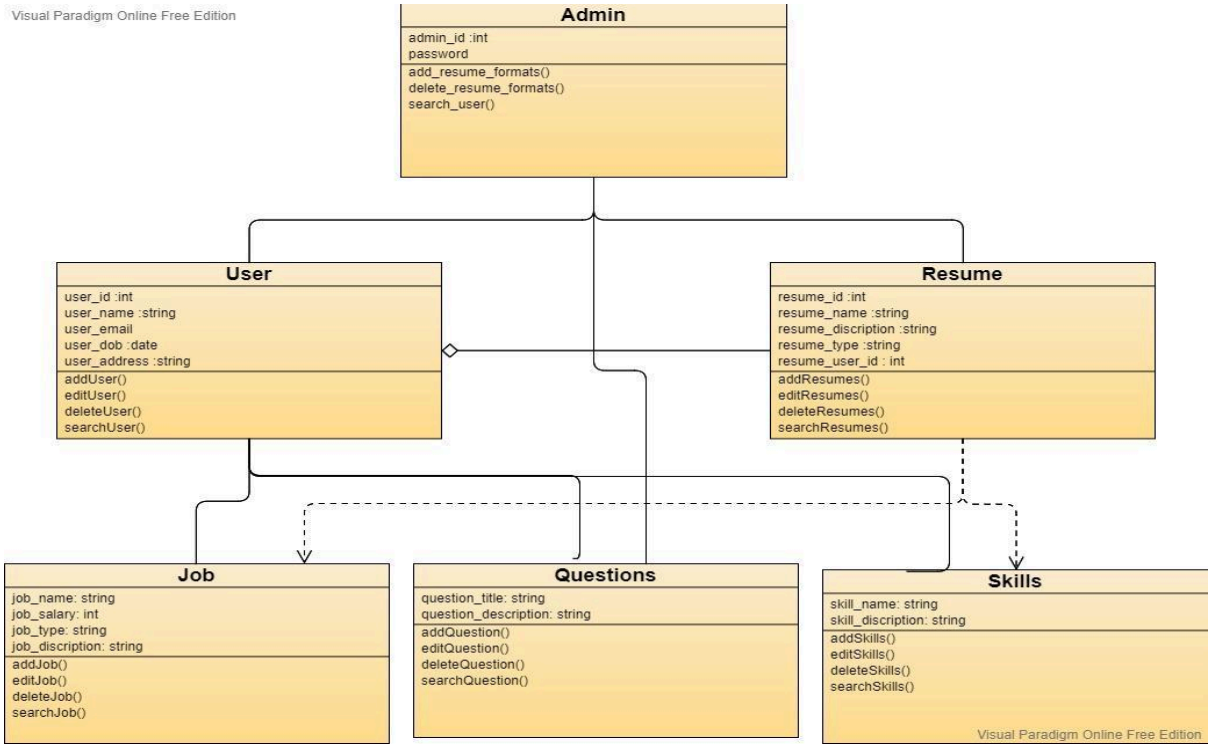
Theory :-

Class Diagrams :-

Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application.
Class diagram describes the attributes and operations of a class and also the constraints imposed on the system. The class diagrams are widely used in the modeling of object oriented systems because they are the only UML diagrams, which can be mapped directly with object-oriented languages.
Class diagram shows a collection of classes, interfaces, associations, collaborations, and constraints. It is also known as a structural diagram.

Resume Builder Class Diagram :-

Resume Builder Class Diagram describes the structure of a Resume Builder class, their attributes, operations (or methods), and the relationships among objects. The main classes of the Resume Builder are Resume, Skills, Job, Question, User, Admin



Classes of Resume Builder Class Diagram :-

- **Admin Class**
  - Manage all the operations of Admin
- **User Class**
  - Manage all the operations of User
- **Resume Class**
  - Manage all the operations of Resume
- **Skills Class**
  - Manage all the operations of Skills
- **Job Class**
  - Manage all the operations of Job
- **Question Class**
  - Manage all the operations of Question

Sequence Diagram :-

A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram. Sequence diagrams describe how and in what order the objects in a system function. These diagrams are widely used by

businessmen and software developers to document and understand requirements for new and existing systems.

Sequence Diagram Notations :-

Actors :- An actor in a UML diagram represents a type of role where it interacts with the system and its objects. It is important to note here that an actor is always outside the scope of the system we aim to model using the UML diagram.

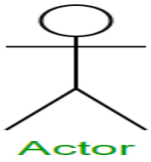


Figure – notation symbol for actor

Lifelines :- A lifeline is a named element which depicts an individual participant in a sequence diagram. So basically each instance in a sequence diagram is represented by a lifeline. Lifeline elements are located at the top in a sequence diagram.
The standard in UML for naming a lifeline follows the following format :-
Instance Name : Class Name

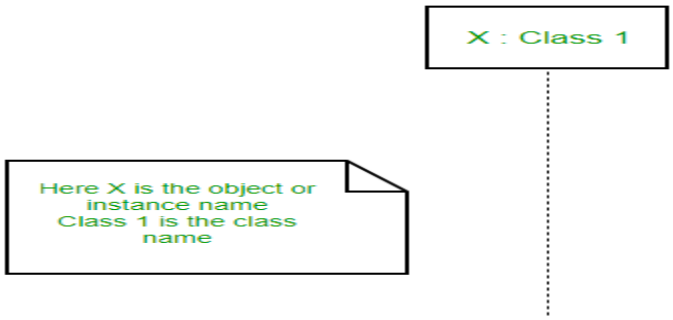


Figure – lifeline

Messages :-

Communication between objects is depicted using messages. The messages appear in a sequential order on the lifeline. We represent messages using arrows. Lifelines and messages from the core of a sequence diagram.

Messages can be broadly classified into the following categories :-

Synchronous messages :-

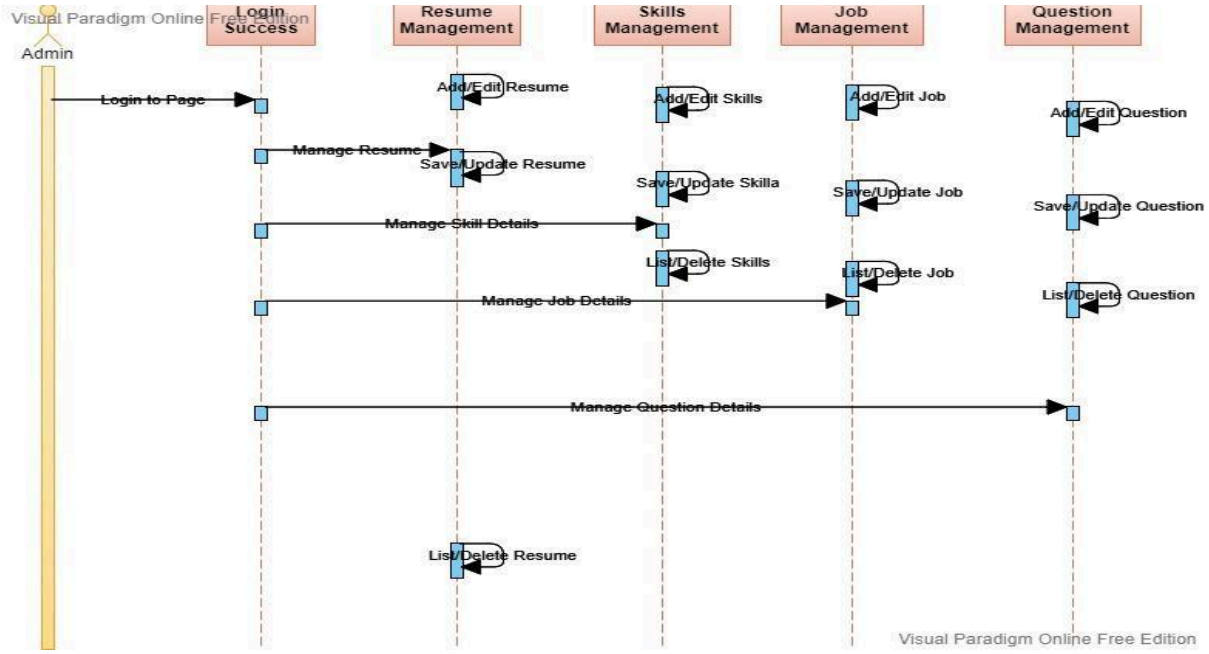
A synchronous message waits for a reply before the interaction can move forward. The sender waits until the receiver has completed the processing of the message.

Asynchronous Messages :-

An asynchronous message does not wait for a reply from the receiver. The interaction moves forward irrespective of the receiver processing the previous message or not. We use a lined arrow head to represent an asynchronous message.

Sequence Diagram for Resume Builder :-

This is the UML sequence diagram of the Resume Builder System which shows the interaction between the objects of Admin, Resume, Job, Question, Skills. The instance of class objects involved in this UML Sequence Diagram of Resume Builder System are as follows :-



This is the Login Sequence Diagram of Resume Builder System, where admin will be able to login in their account using their credentials. After login, users can manage all the operations on Resume, Job, Skills, Question. All the pages such as Job, Skills, Question are secure and users can access these pages after login. The diagram below helps demonstrate how the login page works in a Resume Builder System. The various objects in the Skills, Resume, Salary, Job, and Question page—interact over the course of the sequence, and users will not be able to access this page without verifying their identity.

Activity Diagram :-

We use Activity Diagrams to illustrate the flow of control in a system and refer to the steps involved in the execution of a use case. We model sequential and concurrent activities using activity diagrams. So, we basically depict workflows visually using an activity diagram. An activity diagram focuses on the condition of flow and the sequence in which it happens. We describe or depict what causes a particular event using an activity diagram.

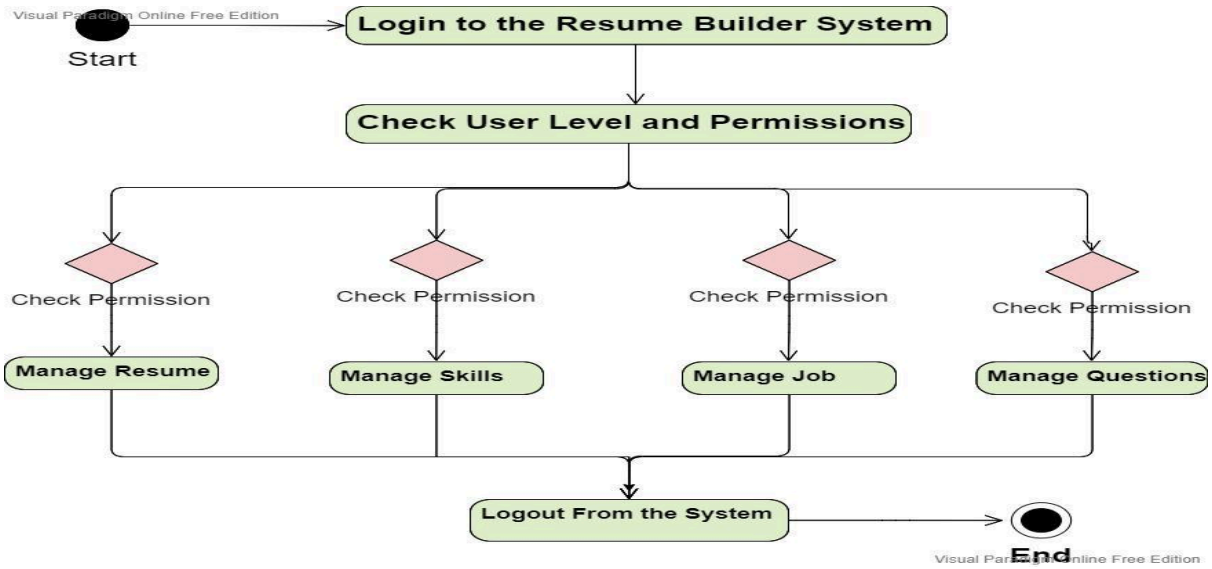
Activity diagram for Resume Builder :-

This is the Activity UML diagram of Resume Builder System which shows the flows between the activity of Skills, Question, Salary, User, Job. The main activity involved in this UML Activity Diagram of Resume Builder System are as follows :-

- ➢ Skills Activity
- ➢ Question Activity
- ➢ Resume Activity
- ➢ Job Activity

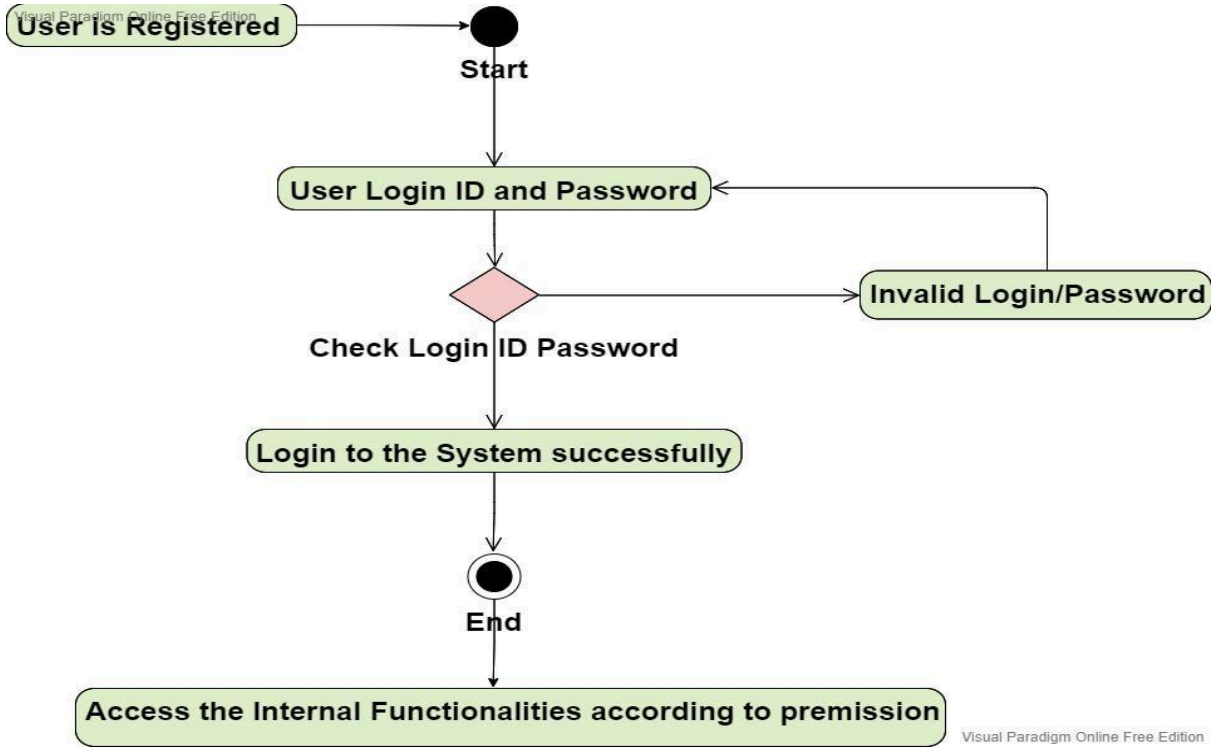
Features Of The Activity UML Diagram Of Resume Builder System :-

Admin User can search Skills, view description of a selected Skills, add Skills, update Skills and delete Skills.
Its shows the activity flow of editing, adding and updating of Question
User will be able to search and generate report of Salary, User, Job
All objects such as (Skills, Question, Job) are interlinked
Its shows the full description and flow of Skills, User, Job, Salary, Question



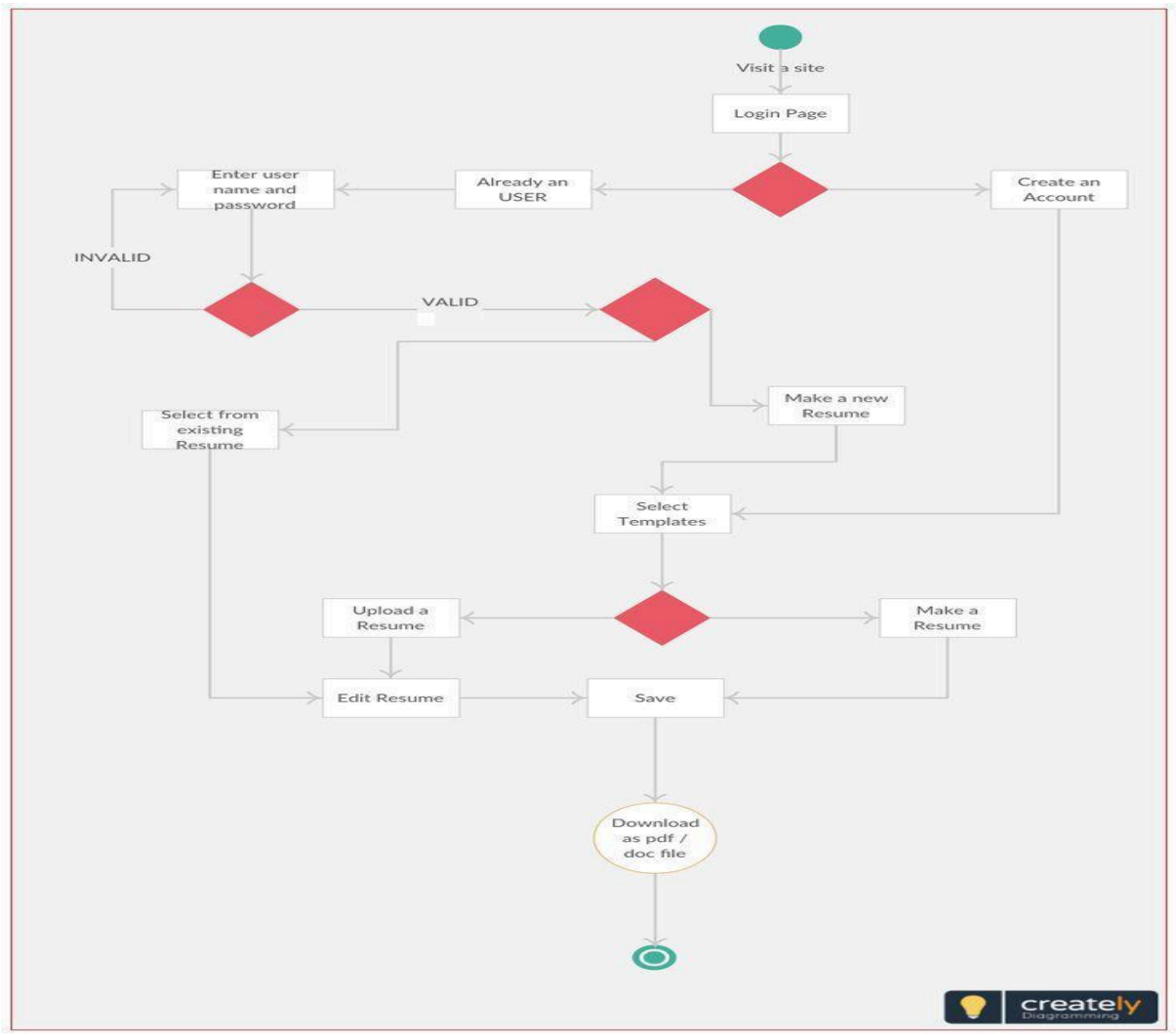
Login Activity Diagram Of Resume Builder System :-

This is the Login Activity Diagram of Resume Builder System, which shows the flows of Login Activity, where admin will be able to login using their username and password. After login, users can manage all the operations on Resume, Skills, Question, Job, User. All the pages such as Question, Job, User are secure and users can access these pages after login. The diagram above helps demonstrate how the login page works in a Resume Builder System. The various objects in the Job, Resume, Skills, Question, and User page—interact over the course of the Activity, and users will not be able to access this page without verifying their identity.



State Diagram :-

A state diagram is used to represent the condition of the system or part of the system at finite instances of time. It's a behavioral diagram and it represents the behavior using finite state transitions. State diagrams are also referred to as State machines and State-chart Diagrams.



Conclusion :-

Hence we have successfully Developed class diagram, Sequence diagram, Activity diagram, State Transition diagram for assigned project (Resume Builder).

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