UNIVERSITY OF ENGINEERING & MANAGEMENT, KOLKATA

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Software Engineering Laboratory

Topic: Insurance Management System

Submitted By:

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Under Supervision of Prof. Anay Ghosh and Prof. Sreyashi Bhattacharya

ACKNOWLEDGEMENTS

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Date: 08.04.2019

Amitrajit Bose (13)
Sourav Kumar (14)
Kirti Ojha (15)

CERTIFICATE

This is to certify that the project entitled "*Insurance Management System*" has been successfully developed by "Amitrajit Bose, Sourav Kumar & Kirti Ojha". They have used Dev C++ to develop the project. Their work is satisfactory.

I wish them all the best for their bright future.

DATE: 08.04.2019

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(Project In-charge)
Prof. Anay Ghosh
Prof. Sreyashi Bhattacharya

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1. Introduction

1.1 Purpose

Online Insurance management system is a web application which is developed for tracking the details of the insurance policy, customer details and company details. This web site is an online insurance Analysis and information management system that provides easy access of information regarding the people and resources of insurance. User can view their own personal details when logged in into the Policy Holder module. This project is useful for any kind of insurance company to manage the insurance details, to sanctioned the insurance for customer, process the insurance policy details and all kind of insurance process through online. The Insurance management system is a complete solution for organizations, which need to manage insurance for their vehicles, equipment, buildings, and other resources.

1.2 Document Conventions

The FONT used in this document is: Times New Roman. Important points are written in **bold**.

1.3 Intended Audience and Reading Suggestions

This document is to be read and analyzed by our college, UEM CSE Dept. Professors for academic purposes. This document mainly consists of the output of our console-based software and the following diagrams:

1. **ERD**
2. **DFD**
3. **DECISION TREE & DECISION TABLE**
4. **STRUCTURE CHART**
5. **SEQUENCE DIAGRAM**
6. **CLASS DIAGRAM & OBJECT DIAGRAM**

1.4 Product Scope

This insurance management console has facilities like search tools for insurance awareness articles, guidelines, illustrations through images for visitors. This insurance management system can efficiently manage the company, records, provides instant access and one that improves the productivity. In this console process the user enters into the website it will show details about insurance and its types, also it will show the details about different duration schemes to the corresponding insurance type or insurance policy. The main objective of the developed system is to allow admin users to register insured persons with their name, date of birth, residence address, medical history and also policy details.

1.5 References

This documentation strictly follows the IEEE Software Requirements Specification Template.

2 Overall Description

2.1 Product Perspective

This Insurance Management System is a self-contained system used to perform multiple functions related to the financial protection and reimbursement of damages from the insurer or the insurance company. The basic principle of insurance is that an entity will choose to spend small periodic amounts of money against a possibility of a huge unexpected loss. Basically, all the policyholder pools their risks together. Any loss that they suffer will be paid out of their premiums which they pay.

2.2 Product Functions

1] Provides Reliability

The main function of insurance is that eliminates the uncertainty of an unexpected and sudden financial loss. This is one of the biggest worries of a business. Instead of this uncertainty, it provides the certainty of regular payment i.e. the premium to be paid.

2] Protection

Insurance does not reduce the risk of loss or damage that a company may suffer. But it provides a protection against such loss that a company may suffer. So at least the organisation does not suffer financial losses that debilitate their daily functioning.

3] Pooling of Risk

In insurance, all the policyholders pool their risks together. They all pay their premiums and if one of them suffers financial losses, then the pay-out comes from this fund. So the risk is shared between all of them.

4] Legal Requirements

In a lot of cases getting some form of insurance is actually required by the law of the land. Like for example when goods are in freight, or when you open a public space getting fire insurance may be a mandatory requirement. So, an insurance company will help us fulfil these requirements.

5] Capital Formation

The pooled premiums of the policyholders help create a capital for the insurance company. This capital can then be invested in productive purposes that generate income for the company.

2.3 User Classes and Characteristics

The software has been developed keeping in mind the personalized usage of multiple end users who will be using the application to keep track of their insurance policies and compute premiums. The current version of the software does not include a master password or admin account, to maintain the privacy of every user of the application, everyone has to sign-up before using it.

2.4 Operating Environment

The software can operate on any Linux system which has g++ compiler installed.

2.5 Design and Implementation Constraints

1. Completely console based
2. Implemented the database using file management system and object serialization schemes.

2.6 User Documentation

A project report along with a small presentation will be given about our software project.

2.7 Assumptions and Dependencies

Customer need have minimum computer knowledge to operate system and register. Agent needs the knowledge of computer as well as insurance policy domain insurance company employees need knowledge of Insurance domain as well as computer.

3 External Interface Requirements

3.1 User Interfaces

- Front-end software: Console Based Application - C++
- Back-end software: File Management System & Object Serialization

3.2 Hardware Interfaces

- Linux

3.3 Software Interfaces

Software used	Description
Operating system	Compatible with Linux and UNIX-based Operating Systems. Compatibility on Windows OS has not yet been tested.
Database	To save the user insurance records, user login records we have chosen file management system and object serialization schemes.

4. System Features

The software has features and capabilities that were not available on previous midrange systems. Primary features include the ability to enabling new schemes and offers and create domains. These features provide greater reliability, availability, and serviceability, which means uptime. These features and capabilities are as follows:

- *Domain*--The ability to create logically independent multiple schemes for multiple users, with each domain saved within separate files.
- *Reliability*--A function of the care with which the hardware and software design was executed, the quality of the components selected, and the quality of the maintenance process.
- Availability--The percentage of time the customer's system is able to do productive work.
- Serviceability--The system ensures that repair time (downtime) is kept to a minimum.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

All insurance scheduling, viewing, and options commands must execute instantaneously, except for when exit is chosen in the application. The time to execute exit operation must be in the order of seconds.

5.2 Safety Requirements

Passwords should be masked and not visible when a user enters it on the command line tool. Authentication data must be stored in an encrypted and safe format with proper backup.

5.3Security Requirements

The folder containing all the files of authentication details should be locked and only admin accessible.

5.4Software Quality Attributes

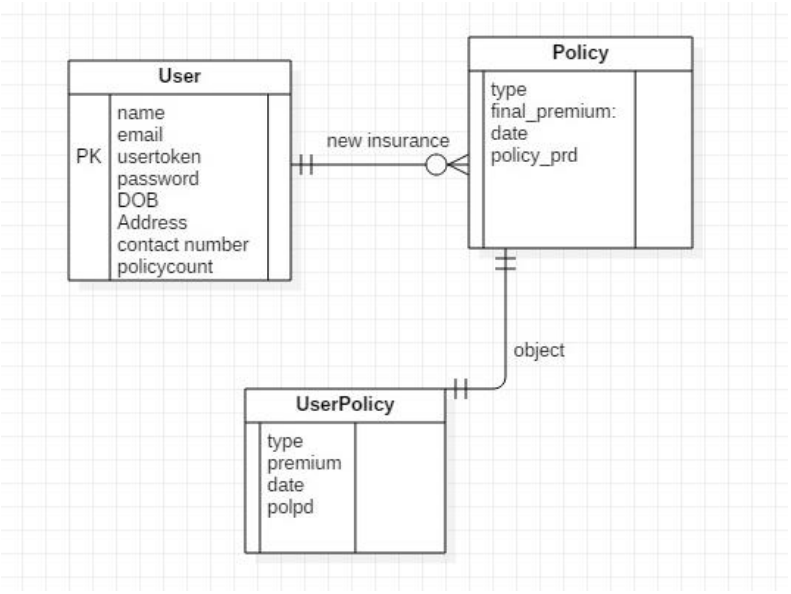
AVAILABILITY: The insurance policy should be available on the specified date and specified time as many customers are doing advance reservations.
CORRECTNESS: The insurance date and premiums should be calculated and correctly.
MAINTAINABILITY: The administrators should maintain correct details and records of all the customers.
USABILITY: The insurance schemes should satisfy a maximum number of customer's needs.

5.5Business Rules

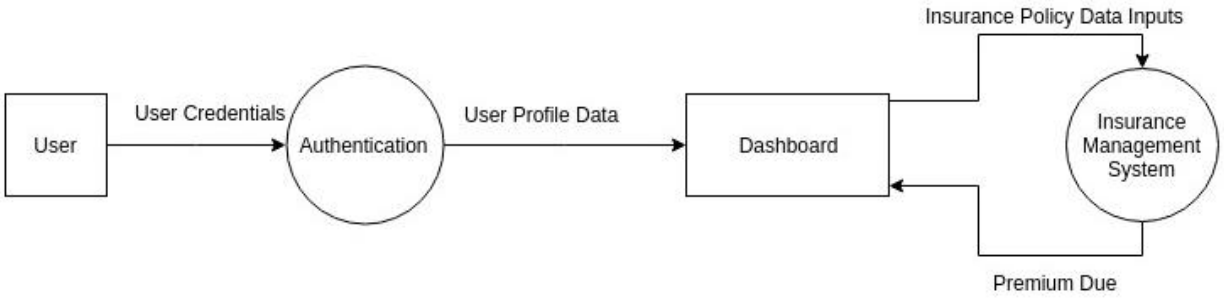
A term plan provides death risk cover for a specified period. In case the life assured passes away during the policy period, the life insurance company pays the death benefit to the nominee. It is a pure risk cover plan that offers high coverage at low premiums. There's an option to add riders to widen up the coverage. The death benefit is payable as lump sum, monthly payouts, or a combination of both. There's no payout if the life assured outlives the policy term. However, these days there are companies offering Term Plans with Return of Premiums (TROPS), where insurance companies payback all the paid premium amount in case the life assured outlives the term period. But, such plans are costlier than the vanilla term insurance plan.

6 Design Documents

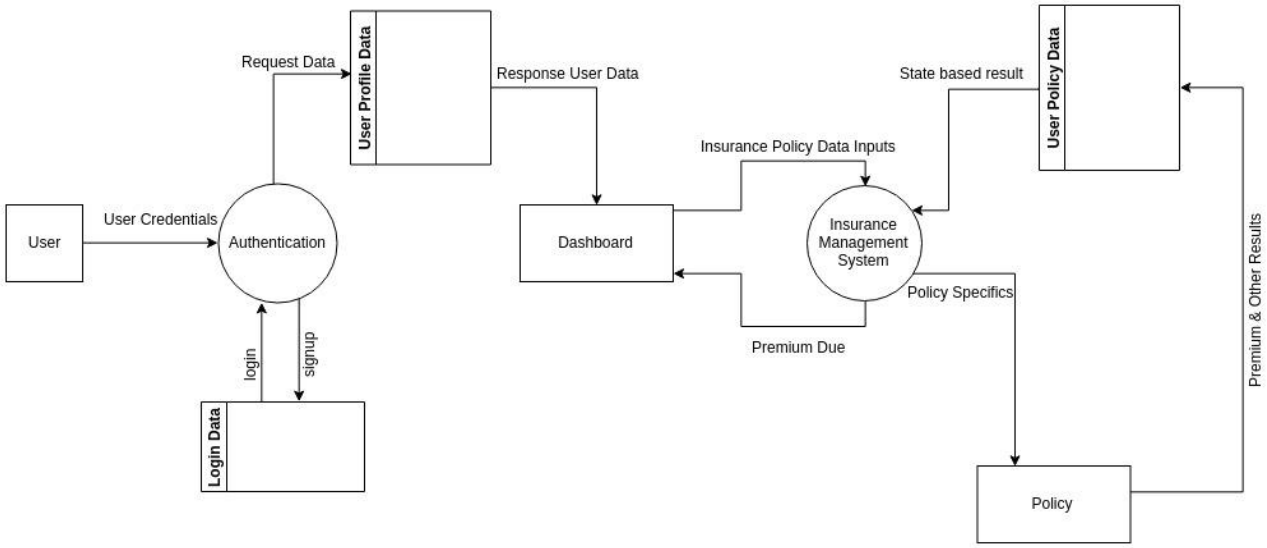
- **ER Diagram**



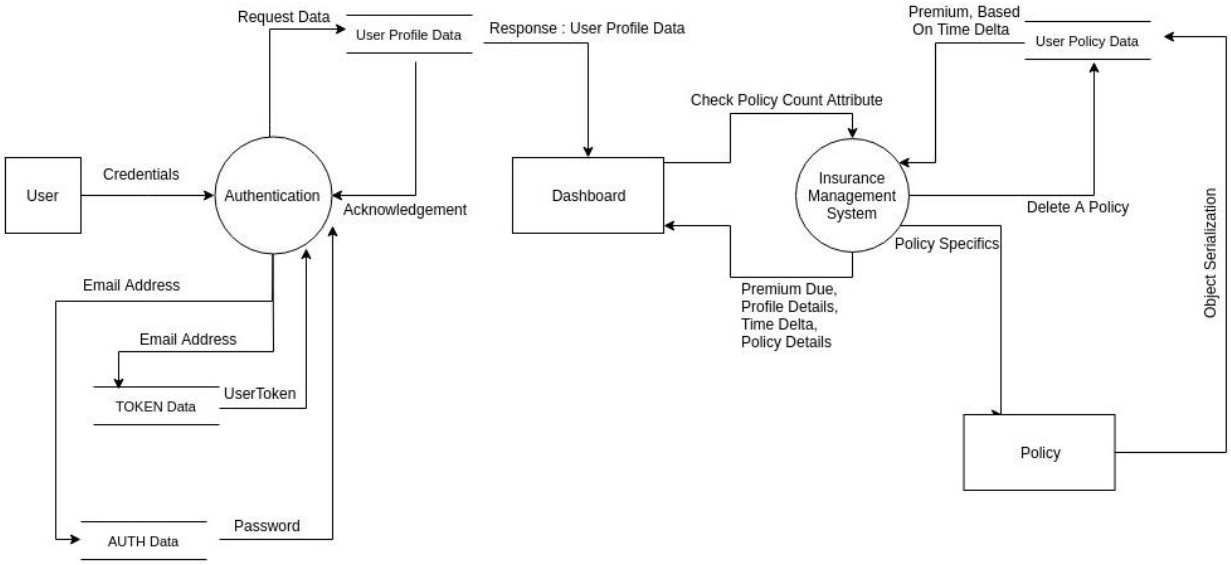
- **Data Flow Diagram**



DFD LEVEL 0



DFD LEVEL 1



DFD LEVEL 2

- **Decision Table**

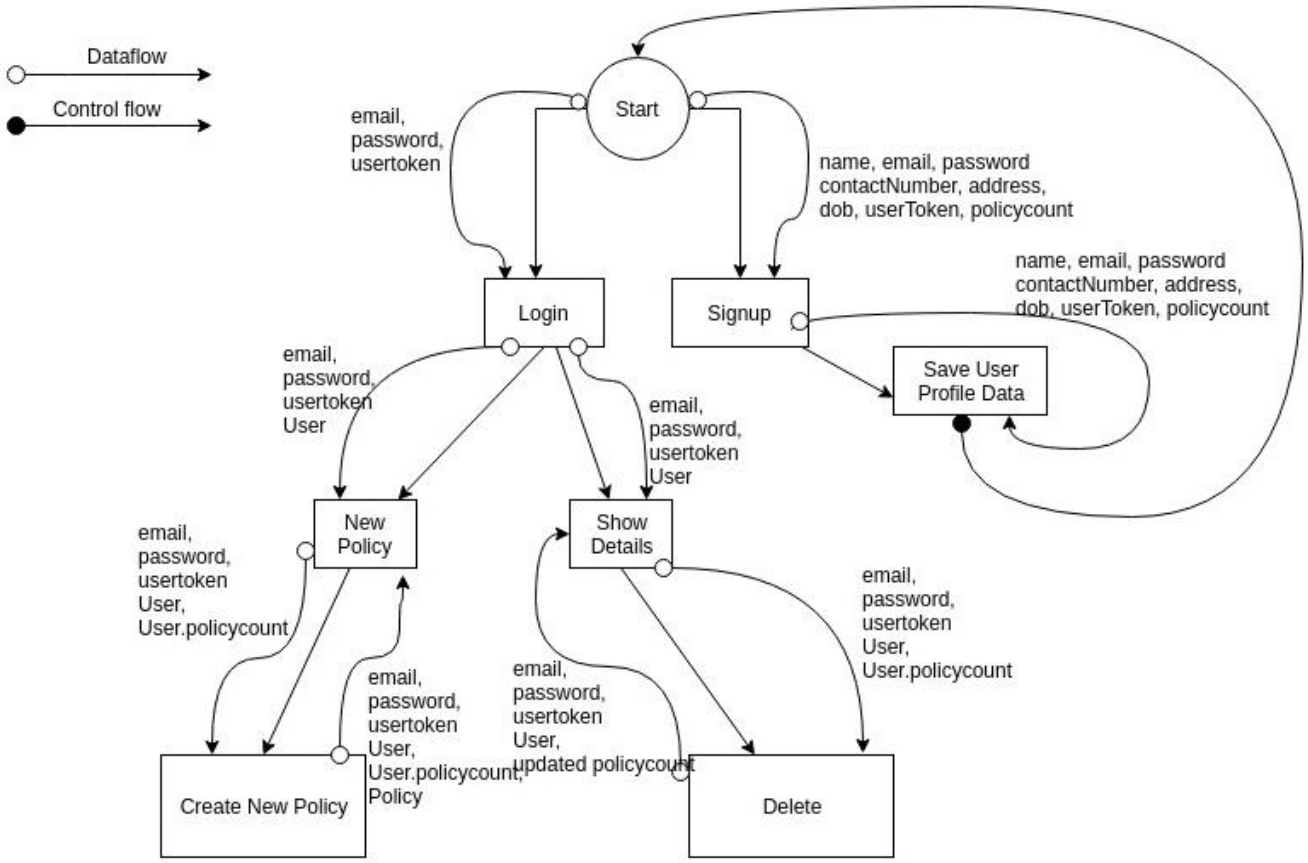
• *conditions*

Valid selection	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
New user	**--**	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**
Existing user	**--**	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**
New policy	**--**	**--**	**NO**	**YES**	**YES**	**YES**	**YES**
Policy_count > 0	**--**	**--**	**--**	**YES**	**NO**	**NO**	**NO**
Life	**--**	**--**	**--**	**--**	**YES**	**NO**	**NO**
Home	**--**	**--**	**--**	**--**	**NO**	**YES**	**NO**
health	**--**	**--**	**--**	**--**	**NO**	**NO**	**YES**

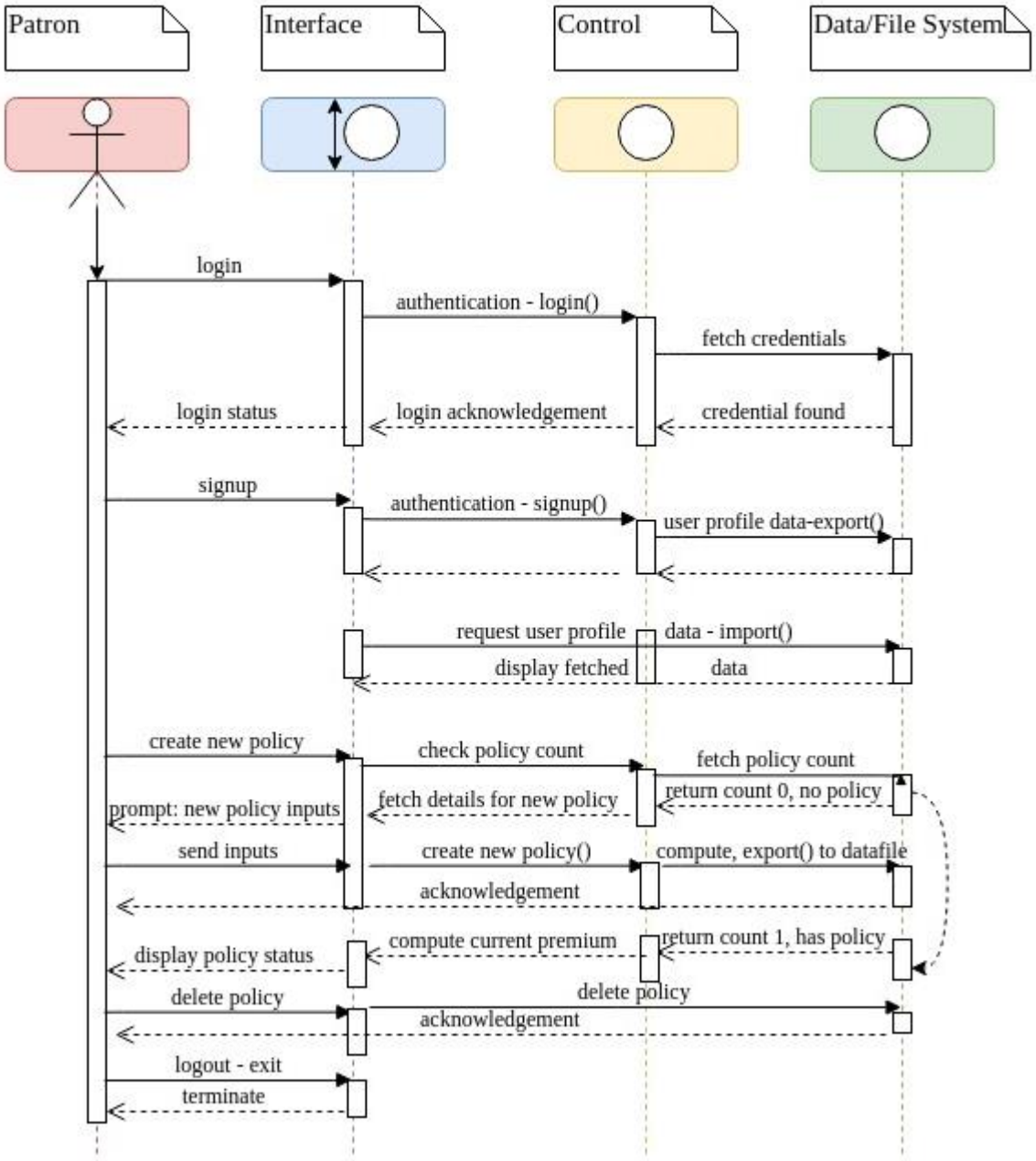
actions

Display error message	X						
Ask for user's name, email &password.		X					
Store membership record		X					
Display Registration Successful		X					
Display policy details			X		X	X	X
Display "one policy per user" error message				X			
Create new policy					X	X	X

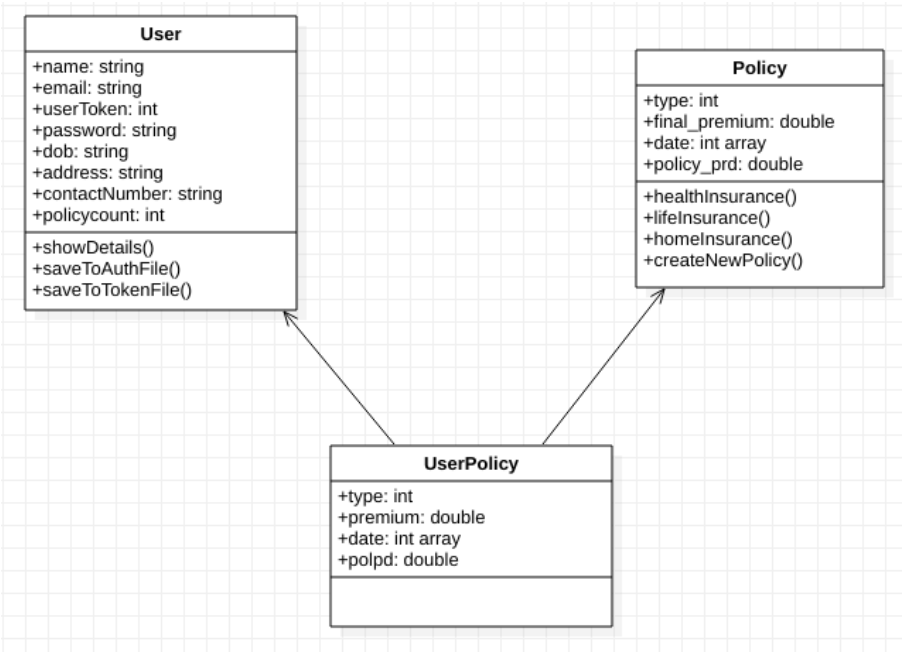
- **Structure Chart**



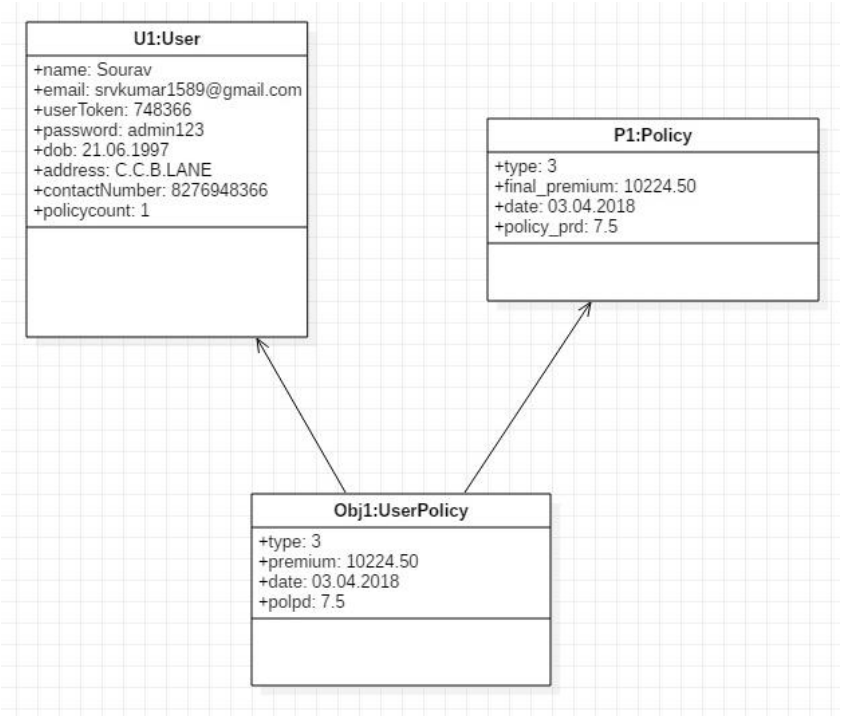
- **Sequence Diagram**



- **Class Diagram**



- **Object Diagram**



7. Output

```
jeet@jeet-linux:~/my_Projects/insurance$ g++ main.cpp && ./a.out
-----------------------------------------------------
*** Welcome To The Insurance Management System App ***
-----------------------------------------------------

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: l
Enter Your Email: jd@gmail.com
Enter Your Password:
Login Successful

******* USER DETAILS *******
NAME ........ John Doe
PHONE ....... 989865654323
EMAIL ....... jd@gmail.com
Press 1 To Show More Details Otherwise 0: 0
Do You Want To Create A New Insurance Policy? [Y/N] Y
Enter Choice Of Policy
1 --> Health Insurance
2 --> Life Insurance
3 --> Home Insurance
Enter Choice : 3
Enter Date Of Policy Creation [DD MM YYYY]: 06 12 2017
Date Noted : 6/12/2017
Enter Age Of Applicant: 25
Enter Policy period in years or enter -9 for indefinite policy period
10
Is your flat rented(r) or owned(o)? r
Enter total value of contents : 2000000
Your Monthly Premium is : 183333 for a period of 120 months
Thanks for using the service.

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: l
Enter Your Email: jd@gmail.com
Enter Your Password:
Login Successful

******* USER DETAILS *******
NAME ........ John Doe
PHONE ....... 989865654323
EMAIL ....... jd@gmail.com
Press 1 To Show More Details Otherwise 0: 0
Do You Want To Create A New Insurance Policy? [Y/N] n
**** Your Insurance Policy Details Below ****
No Insurance Policy Registered Yet
Logging you out ...

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: l
Enter Your Email: anyname@hotmail.com
Enter Your Password:
Login Failed

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: x

Closing Application...
Exit Successful !
jeet@jeet-linux:~/my_Projects/insurance$
```

```
******* USER DETAILS *******
NAME ........ John Doe
PHONE ....... 989865654323
EMAIL ....... jd@gmail.com
Press 1 To Show More Details Otherwise 0: 0
Do You Want To Create A New Insurance Policy? [Y/N] Y
Sorry. One Policy Per User In This Version
Logging you out ...

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: l
Enter Your Email: jd@gmail.com
Enter Your Password:
Login Successful

******* USER DETAILS *******
NAME ........ John Doe
PHONE ....... 989865654323
EMAIL ....... jd@gmail.com
Press 1 To Show More Details Otherwise 0: 0
Do You Want To Create A New Insurance Policy? [Y/N] n
**** Your Insurance Policy Details Below ****
Your Initial Premium: 2454
Current Amount Payable: 46626
Do You Want To Delete The Insurance Policy? (Yes=1 / No=0): 1
Thanks for using the service.
Logging you out ...
```

```
PHONE ....... 989865654323
EMAIL ....... jd@gmail.com
Press 1 To Show More Details Otherwise 0: 1
D.O.B ....... 10091990
ADDRESS ..... 123/1 New Town, Action Area III, Kolkata, India
POLICIES .... 0
Do You Want To Create A New Insurance Policy? [Y/N] Y
Enter Choice Of Policy
1 --> Health Insurance
2 --> Life Insurance
3 --> Home Insurance
Enter Choice : 1
Enter Date Of Policy Creation [DD MM YYYY]: 03 11 2018
Date Noted : 3/11/2018
Enter Age Of Applicant: 26
Enter Health Condition (0 to 10) with 10 being the Fittest.:7
Enter Policy period (in months): 24
Sum Chart = 1,2,3,4,5 (in Lakhs)
Enter Sum Insured: 4
Your total premium is : 2454     for a period of 24 month(s)
Thanks for using the service.

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: l
Enter Your Email: jd@gmail.com
Enter Your Password:
Login Successful

******* USER DETAILS *******
NAME ........ John Doe
PHONE ....... 989865654323
EMAIL ....... jd@gmail.com
Press 1 To Show More Details Otherwise 0: 0
Do You Want To Create A New Insurance Policy? [Y/N] N
**** Your Insurance Policy Details Below ****
Your Initial Premium: 2454
Current Amount Payable: 46626
Do You Want To Delete The Insurance Policy? (Yes=1 / No=0):
```

```
jeet@jeet-linux:~/my_Projects/insurance$ g++ main.cpp && ./a.out
-----------------------------------------------------
*** Welcome To The Insurance Management System App ***
-----------------------------------------------------

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: s
-------------------------------------------
***** FILL UP THE USER REGISTRATION FORM *****
-------------------------------------------
Enter Your Name: John Doe
Enter Valid Email: jd@gmail.com
Enter Alphanumeric Password:
Enter D.O.B [DDMMYYYY]: 10091990
Enter Address: 123/1 New Town, Action Area III, Kolkata, India
Enter Contact Number: 989865654323
REGISTRATION SUCCESSFUL. LOGIN AGAIN TO CONTINUE.

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: l
Enter Your Email: jd@gmail.com
Enter Your Password:
Login Failed

Press [L / l] To Login
Press [S / s] To Signup
Press [X / x] To Exit
Enter Choice: l
Enter Your Email: jd@gmail.com
Enter Your Password:
Login Successful

******* USER DETAILS *******
NAME ........ John Doe
PHONE ....... 989865654323
EMAIL ....... jd@gmail.com
```