

---

# LIFE INSURANCE CUSTOMER PORTAL WITH PREMIUM CALCULATOR

---

JAVA & REACT



EY-GDS  
TEAM-F  
SRM UNIVERSITY-AP

## Contents

Abstract:.....	2
Keywords:.....	2
Introduction: .....	3
Life insurance calculator: .....	3
Technology Requirements: .....	4
Tech Stack: .....	4
Software Requirements: .....	4
Hardware Requirements:.....	4
Working prototype: .....	5
Front-End: .....	5
Back-end: .....	7
Premium Quote Algorithm Rating: .....	9
Workflow diagrams:.....	13
Frontend flow: .....	13
Backend flow:.....	14
Database Schema:.....	15
.....	15
Sequence Diagrams:.....	16
Login Sequence: .....	16
.....	16
Website navigation Sequence: .....	17
.....	17
State Diagram: .....	18
API calls: .....	18
UI Screenshots: .....	22
Home-Screen: .....	22
Sign-in: .....	23
Sign-up: .....	23

## Abstract:

The portal life insurance with premium calculator helps us to estimate the term life insurance policies based on the user data collected and the risk will be calculated accordingly and also discount applied if any. The premium will be calculated based on the user data collected by using a defined algorithm and provides you the quote I.e the type of the pay you can choose and the term, that is duration will be suggested based on the inputs.

## Keywords:

- Insurance: a protection for insuring against loss.
- Policy: written document between the customer and insurance company.
- Face amount: the amount payable for the beneficiary if the insurer lost his life by adding the maturity benefit.
- Premium: the money that need to be paid regularly to the insurance company to keep the insurance policy in charge.
- Beneficiary: the person who'll be receiving the benefit from entity or a person.
- Protection period: number of years that insurance is covered under the policy contract.
- Actuary: The Person who sets the policy type, premium rate and develops the life insurance.

## Introduction:

The Life insurance is a commitment between the person and an insurance company for making insured their lives. Basically, in exchange for your premium payments, the insurance company will pay a combined sum known as a death benefit to your heirs after your death.

Your beneficiaries can use the money received for various purpose they choose and they can use it in their way. Frequently can say that for paying everyday bills, paying a mortgage or putting a child for their education. Having the safety net of life insurance can insure that your family can stay in their home and pay for the works or their things that they planned it for.

## Life insurance calculator:

the insurance premium calculator is a tool which helps you to calculate the estimated amount of premium that you are required to pay for your interested insurance coverage and policy benefits. The insurance premium calculator lets you into consideration on various factors such as age, present income, debts, marital status, medical challenges and the number of dependents to help you choose an insurance plan that suits your needs and your life goal priorities.

What a Term Plan Calculator do to You is basically a term insurance calculator helps you get a raw estimate of the insurance coverage that you would need to protect your family

members financially and the premium payable ideally, the life insurance coverage should be highly enough to secure your family's financial conditions in case of an issues. Apart from this, the premium payable for the insurance coverage needs to be choose that should be come within your monthly budget plan. A term insurance premium calculator provides you the required premium amount to be payable for the selected insurance coverage amount, based on life cover amount and term of the policy.

## Technology Requirements:

### Tech Stack:

Server-side: Java, Spring boot and microservices by Jakarta Servlet, Hibernate-JPA, SQL.

Client-side: Html-5, CSS-3, Java Script, React-Js.

### Software Requirements:

Eclipse-JavaEE, VS-Code, My-Sql workbench, postman-Api.

### Hardware Requirements:

- Hard disk: 40gb(min)
- Ram: 4gb
- Virtual memory:32mb
- Processor: intel core

## Working prototype:

### Front-End:

#### About React js:

The front end of the portal was completely done on React js. React js is actually an efficient and flexible open-source framework library of JavaScript to build different types of user interfaces. In react, everything is considered and defined in components. In the project react is effectively used for developing the front-end client side and also on server side with other existing framework.it uses DOM which improves the performance of the app. In react project, there are so many properties and modules and they are follows:

- App.js: is the App component file which acts as a container to all the components in project.
- App.css: is used to hold all the CSS properties of the project.
- Package.json: the brain of the whole project that is used to store the meta data associated within it and also the dependencies packages.
- Index.js: this is used for rendering the main react component on to root element.

#### About Axios:

Axios is a popular library is substantially used to send asynchronous HTTP requests to REST endpoints. This library is actually useful to perform CRUD operations. This popular

library is applied to communicate with the backend. it supports the Promise API, native to JSES6. Using Axios we produce API calls in our application. Once the call is made, we get the data in Return, and likewise we use this data in our project. As we've discussed that Axios allows you to communicate with the APIs in your React project. The identical tasks can also be performed by using AJAX, but Axios give you additional functionality and features and that helps you in building your operation fast.

### About Private React Routers:

Private Routes in React Router also known to be Protected Routes is required by a user being authorized to visit a route to read page. So, if a user is not authorized for a specific page, then they cannot access to that page. The most frequent situation is that the authentication in a React application where a user can only access the protected pages where they are authorized and it depicts in this case as being authenticated. Authorization goes after authentication though a user can also have roles and permissions which give a user access to specific areas of the application.

### Working of Front-End:

The pages namely Signin, Signup, Home, Dashboard, Beneficiary, Lifestyle details, Summary and Feedback interactive are created in a single project with individual

components. Using MUI library in react, the format and styles has been created including header and footers. apart from this, we need to create user service file in which it carries the communication in between the controller and the persistence layer. We will provide the base URL Api's in the service file and send the communication. Coming to authentication we use the private react routers which helps you to provide the security to navigation of different pages and personal info of the portal without proper authentication.

## Back-end:

### About Spring-Boot:

Spring Boot is a open source, microservice- based Java web framework. The Spring Boot architecture creates a completely product-ready environment that's fully configurable using its prebuilt code within its codebase. The microservice architecture provides developers with a completely enclosed operation, including embedded operation servers. Spring Boot is precisely extension of the formerly existing and expansive Spring frameworks, but it has some distinct features that make the application easier for working within the developer ecosystem. That extension includes pre-configurable web starter stuff that help facilitate the liabilities of an application server that are needed for different Spring systems.



## Working of back-end:

A maven project is created and after that, in the Src/main/java, we need to create the different packages namely Application.java, controller, Dao, Entities, Service, Exceptions. We followed the four-layer architecture here and accordingly we did create the packages. The process is that when a client or user sends the https request like Post, Get, Put operations, the presentation layer will be handled all those and then after it was being authenticated, it will be directed to the controller layer page, where the controller maps the incoming request and it processes the handles and finally calls the logic of the server. Followed by this, the business layer starts working in the service layer which is mainly for the performing the authorization and for validation. Finally, the spring boot framework performs the whole requests and logic over the data present in the database that is mapped to the spring boot model class by the hibernate jpa where the CRUD operations are performed. At last, the page will be returned to the user if there is an error encountered. Likewise in frontend, the backend does contain the items i.e Beneficiary, Feedback, Lifestyle, User, Submission, Quote. In controller package, beneficiary, feedback, submission, quote, user where all these pages will map the incoming calls and handles them. In Dao package, we created dao page and dao implements page for accessing the data objects where the dao implements page is

for defining the standard operations performed on the object models. In entities package the objects are stored in record at the database of different pages including the hereditary, medical, hobbies, person, quote, beneficiary. And at service package all the pages class files will be used for the business logic in a whole new different layer.

## Premium Quote Algorithm Rating:

To use the insurance premium calculator and get the result, we need to provide the following details like Name, Gender, Date of Birth Annual Income, Mobile number, E-mail ID, Lifestyle choices such as whether you are a smoker/non-smoker, Alcoholic or not, health conditions etc. also selecting the following parameters Life coverage amount, tenure of the policy, Duration of the premium payment, Premium payment type like there is four premium payment modes-Annual Half Yearly, Quarterly, and Monthly. Choosing the following add-ons (on payment of the additional premium) Accelerated Critical illness (ACI) Benefit, Future Waiver of Premium, Accidental Cover. The different types of categories will affect the risk factor and based on that the premium is calculated and the ranges of different parameters as follows:

Type of bad habit	Risk Factor: if yes:	If no:
Smoking	1	0
Drinking	1	0
Drugs	1	0

Hobbies	Risk Factor: If yes	If no:
Scuba Diving	0.1	0
Bungee jumping	0.15	0
Sky diving	0.1	0
Racing	0.05	0

Age Limit	Risk Factor: if falls in that age limit	If no:
21-30	0.3	-
31-40	0.4	-
41-50	0.5	-
51-60	0.6	-
61-70	0.7	-
71-80	0.8	-
81-90	0.9	-
91-100	1	-

Medical complications	Risk factor	If none
Diabetes	0.05	0
Blood pressure	0.05	0
Cardiac arrest	0.1	0
Cancer	0.2	0
Asthma	0.1	0

Hereditary Complications	Risk factor	If none
High Blood pressure	0.05	0
Alzheimer	0.1	0
Cardiac complications	0.05	0
Diabetes	0.1	0
Cancer	0.1	0
Arthritis	0.2	0

Occupation	Risk Factor	If none
Military	0.2	0
Business	0.1	0
Public sector	0.05	0
Private sector	0.05	0
Sports	0.1	0

Based on the user's response collected the premium quote is generated by using a dedicated formula as follows:

Premium quote=

$$(0.5 + (\text{total risk}/4.5)) * (\text{Coverage amount}/(\text{years}*12))/100$$

For example,

If user total risk is 2, coverage selected is 1000000, and duration years is 20 then the premium quote will be as follows,

$$(0.5+(2/4.5)) * (1000000/20*12))/100 = 39.35185\sim.$$

Another example as follows:

$$(0.5+(2.2/4.5)) * (2000000/10*12))/100 = 164.81458\sim.$$

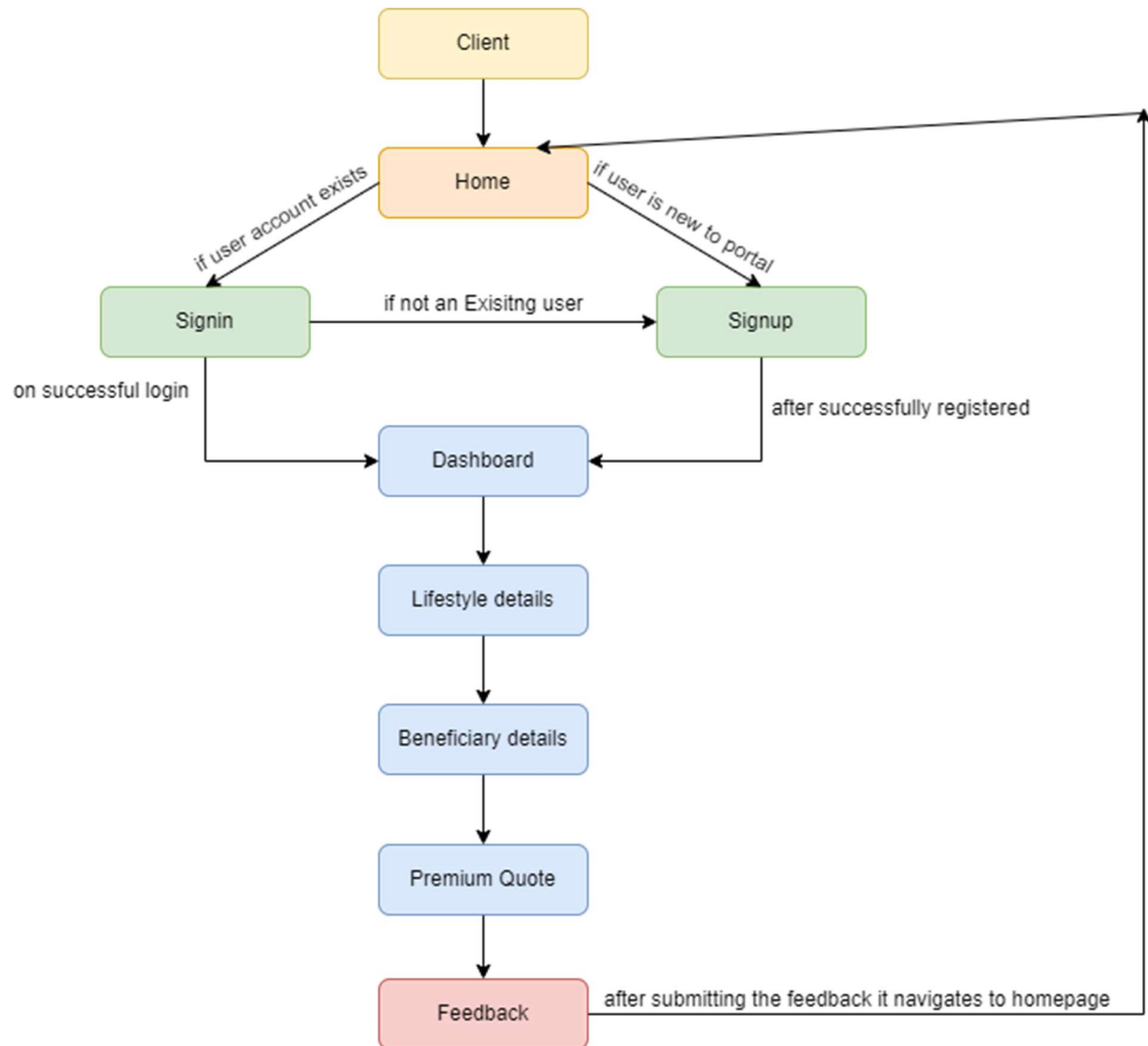
So, in this manner the premium term quote will get and the premium will vary from person to person depending upon the input they provided. The whole calculation part has been done and implemented on the backend part and the responses will be stored in the database.

The value of the premium changes on various factors and the examples of different categories influences as follows:

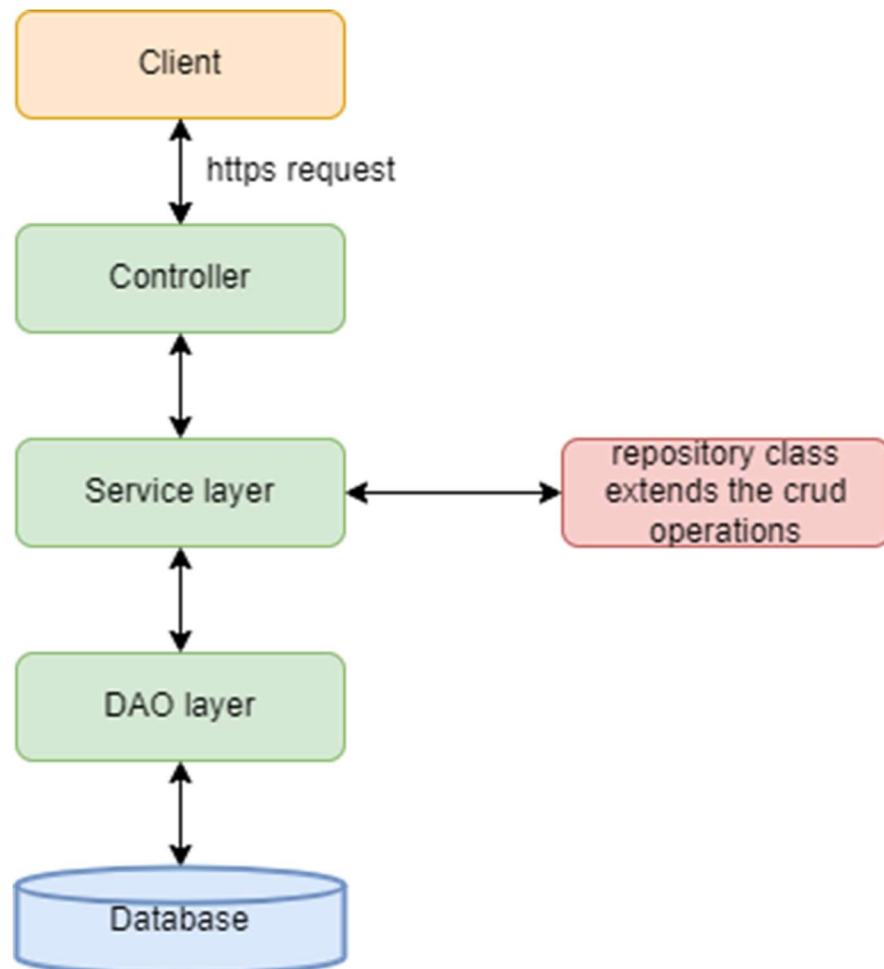
Quote changes (Because of every Qutation)										
Date of Birth	Coverage Amour	Number of Year	Smoke	Drink	Occupation(Business,Military,Private Sector,public Sector,Spor	Hobbies (Racing, Sky Diving,Bunjee Jumping,Scuba Diving,ot	Medical (Diabetes,Blood Pressure,Cancer,Brain Tumour,oth	Hereditary Diseases(Heart Disease,High Blood Presure,Alzhemer,Arthritis,ot	Quote	
6/1/1991	3000000	15	Yes	No	No	No	No	No	116.66	
6/1/1991	3000000	15	No	Yes	No	No	No	No	116.66	
6/1/1991	3000000	15	No	No	Business	No	No	No	86.26	
6/1/1991	3000000	15	No	No	Military	No	No	No	83.9	
6/1/1991	3000000	15	No	No	Private Sector	No	No	No	84.9	
6/1/1991	3000000	15	No	No	Public Sector	No	No	No	84.9	
6/1/1991	3000000	15	No	No	Sports	No	No	No	86.6	
6/1/1991	3000000	15	No	No	No	Racing	No	No	84.9	
6/1/1991	3000000	15	No	No	No	Sky Diving	No	No	86.6	
6/1/1991	3000000	15	No	No	No	Bunjee Jumping	No	No	88.2	
6/1/1991	3000000	15	No	No	No	Scuba Diving	No	No	86.6	
6/1/1991	3000000	15	No	No	No	others	No	No	86.6	
6/1/1991	3000000	15	No	No	No	No	Diabetes	No	84.9	
6/1/1991	3000000	15	No	No	No	No	Blood Pressure	No	84.9	
6/1/1991	3000000	15	No	No	No	No	Cancer	No	86.6	
6/1/1991	3000000	15	No	No	No	No	Brain Tumour	No	83.9	
6/1/1991	3000000	15	No	No	No	No	others	No	86.6	
6/1/1991	3000000	15	No	No	No	No	No	Heart Disease	84.9	
6/1/1991	3000000	15	No	No	No	No	No	High Blood Pressure	84.9	
6/1/1991	3000000	15	No	No	No	No	No	Alzhemer	86.6	
6/1/1991	3000000	15	No	No	No	No	No	Arthritis	83.9	
6/1/1991	3000000	15	No	No	No	No	No	others	86.6	
6/1/1991	3000000	15	No	No	No	No	No	No		
Quote changes (By D.O.B)										
Date of Birth	Coverage Amour	Number of Year	Smoke	Drink	Occupation(Business,Military,Private Sector,public Sector,Spor	Hobbies (Racing, Sky Diving,Bunjee Jumping,Scuba Diving,ot	Medical (Diabetes,Blood Pressure,Cancer,Brain Tumour,oth	Hereditary Diseases(Heart Disease,High Blood Presure,Alzhemer,Arthritis,ot	Quote	
1/1/2010	10000	1	No	No	No	No	No	No	4.16	
1/1/1900	10000	1	No	No	No	No	No	No	5.83	
01-01-1800	10000	1	No	No	No	No	No	No	7.49	
Quote changes (By Coverage Amount)										
Date of Birth	Coverage Amour	Number of Year	Smoke	Drink	Occupation(Business,Military,Private Sector,public Sector,Spor	Hobbies (Racing, Sky Diving,Bunjee Jumping,Scuba Diving,ot	Medical (Diabetes,Blood Pressure,Cancer,Brain Tumour,oth	Hereditary Diseases(Heart Disease,High Blood Presure,Alzhemer,Arthritis,ot	Quote	
6/1/1986	3000000	15	No	No	No	No	No	No	83.3	
6/1/1986	4000000	15	No	No	No	No	No	No	111	
6/1/1986	5000000	15	No	No	No	No	No	No	138	
Quote changes (By Years)										
Quote changes (By Years)										
Date of Birth	Coverage Amour	Number of Year	Smoke	Drink	Occupation(Business,Military,Private Sector,public Sector,Spor	Hobbies (Racing, Sky Diving,Bunjee Jumping,Scuba Diving,ot	Medical (Diabetes,Blood Pressure,Cancer,Brain Tumour,oth	Hereditary Diseases(Heart Disease,High Blood Presure,Alzhemer,Arthritis,ot	Quote	
6/1/1986	3000000	10	No	No	No	No	No	No	125	
6/1/1986	3000000	15	No	No	No	No	No	No	83.3	
6/1/1986	3000000	20	No	No	No	No	No	No	62.5	
Quote										
Date of Birth	Coverage Amour	Number of Year	Smoke	Drink	Occupation(Business,Military,Private Sector,public Sector,Spor	Hobbies (Racing, Sky Diving,Bunjee Jumping,Scuba Diving,ot	Medical (Diabetes,Blood Pressure,Cancer,Brain Tumour,oth	Hereditary Diseases(Heart Disease,High Blood Presure,Alzhemer,Arthritis,ot	Quote	
1/1/2001	200354	14	No	Yes	Private Sector	Bunjee jump	Blood Pressure,others	High Blood Pressure,alzimer	3.53	

## Workflow diagrams:

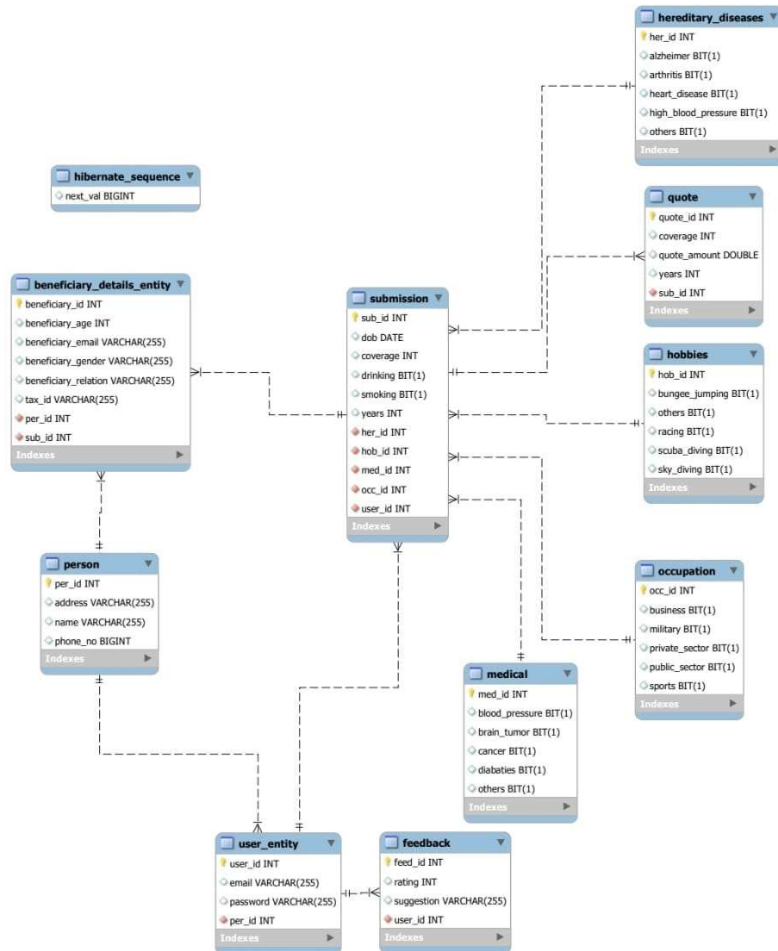
### Frontend flow:



Backend flow:



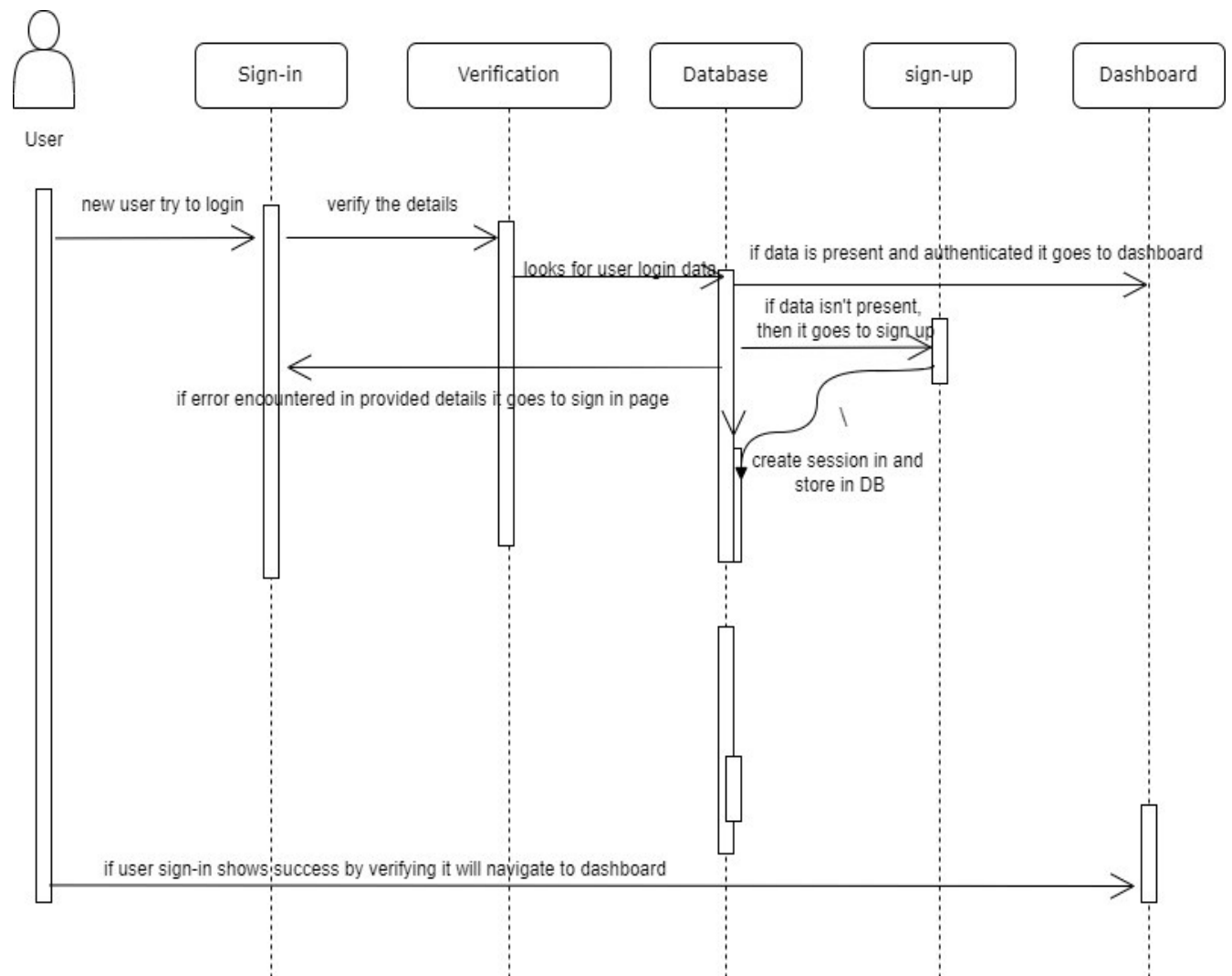
## Database Schema:



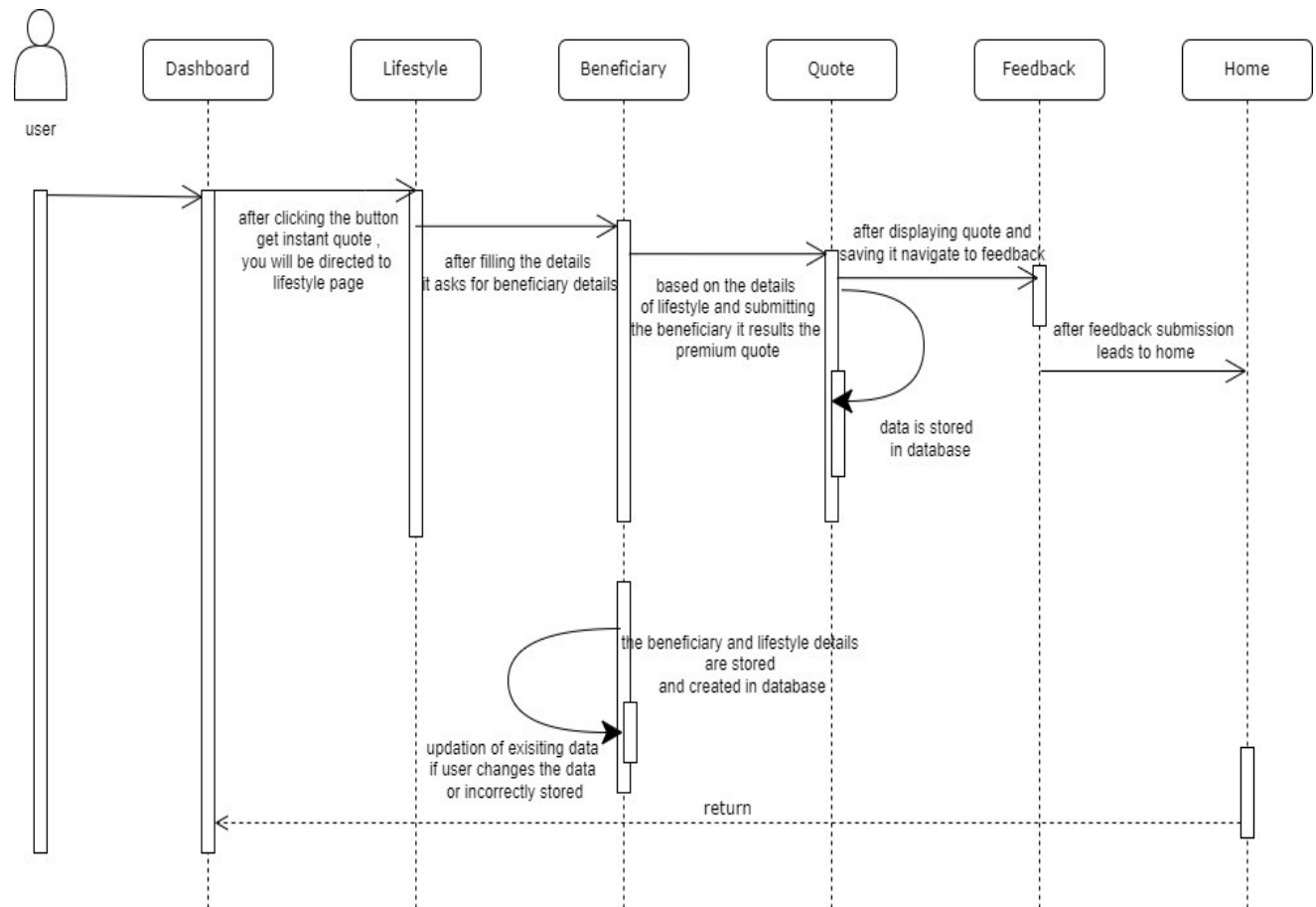


## Sequence Diagrams:

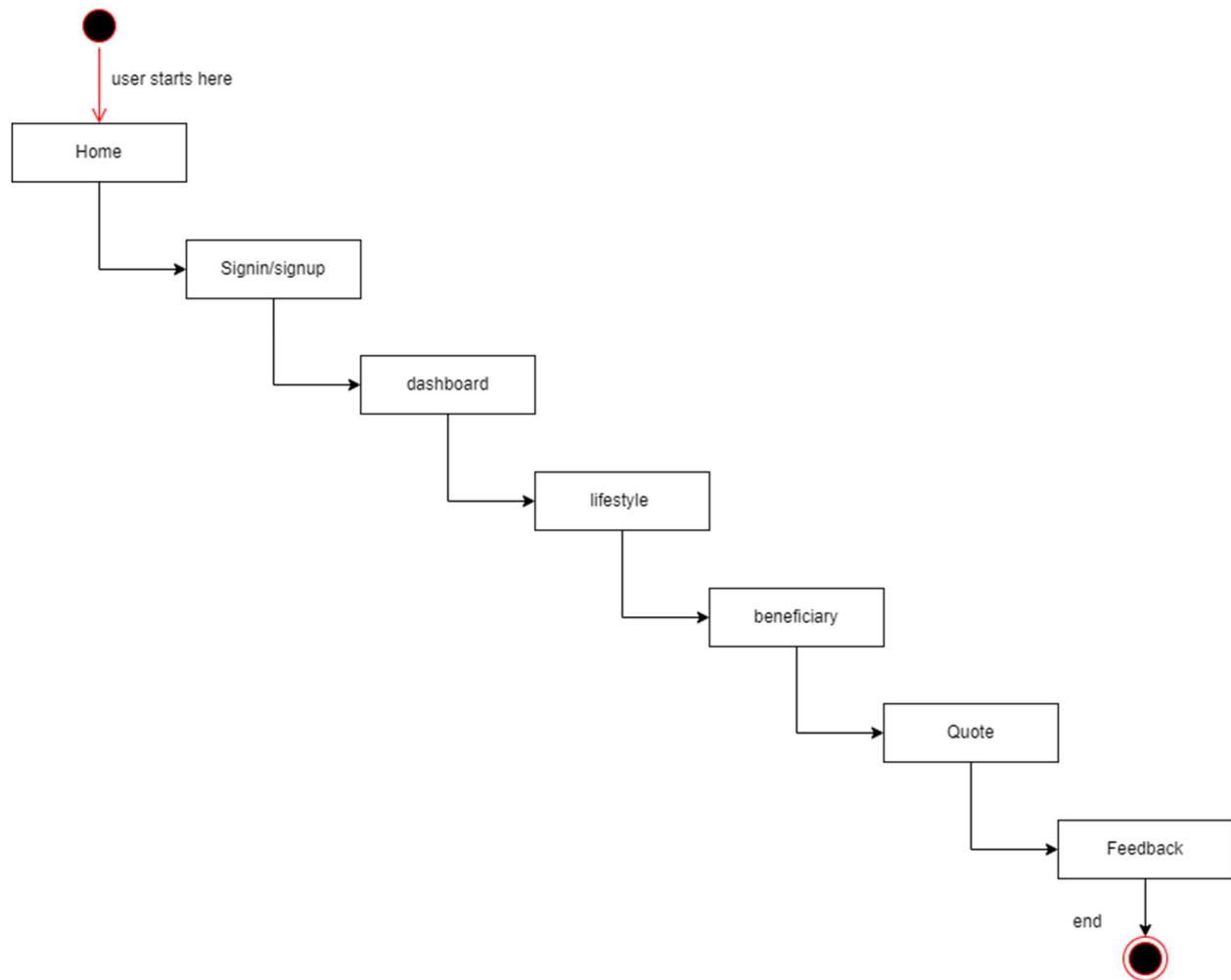
### Login Sequence:



## Website navigation Sequence:



## State Diagram:



## API calls:

- Signup----post

<http://localhost:5000/user/add>

{

"email":"hari@gmail.com",

"password":"Test@123",

```
"person":{
  "name":"Gopal",
  "phoneNo":8986764524,
  "address":"Goa"
}
}
```

- Login----get

<http://localhost:5000/user/login/{email}/{password}>

- submission—post using mail

<http://localhost:5000/submission/addSubmisson/{email}>

```
{
  "smoking":"false",
  "drinking":"false",
  "coverage":"11000",
  "years":"2",
  "dob":"2001-01-19",
  "hobbies":{
    "racing":"true",
    "skyDiving":"false",
```

```
"bungeeJumping":"false",  
"scubaDiving":"false",  
"others":"true"  
},  
"medical":{  
  "diabaties":"false",  
  "bloodPressure":"false",  
  "cancer":"false",  
  "brainTumor":"false",  
  "others":"true"  
},  
"occupation":{  
  "business":"true",  
  "publicSector":"false",  
  "privateSector":"false",  
  "sports":"true",  
  "military":"false"  
},  
"hereditaryDiseases":{  
  "heartDisease":"false",  
  "highBloodPressure":"false",
```

```
"alzheimer":"false",  
"arthritis":"false",  
"others":"true"  
}  
}
```

- Add beneficiary

<http://localhost:5000/beneficiary/add/{email}>

```
{  
  "beneficiaryGender":"male",  
  "beneficiaryAge":"21",  
  "beneficiaryEmail":"okokok@gmail.com",  
  "beneficiaryRelation": "son",  
  "taxId":"QUekdjkw",  
  "person":{  
    "name":"narendra",  
    "phoneNo":9986364524,  
    "address":"Delhi"  
  }  
}
```

- **getQuote**

<http://localhost:5000/quote/{email}>

- **feedback**

<http://localhost:5000/feedback/{email}>

{

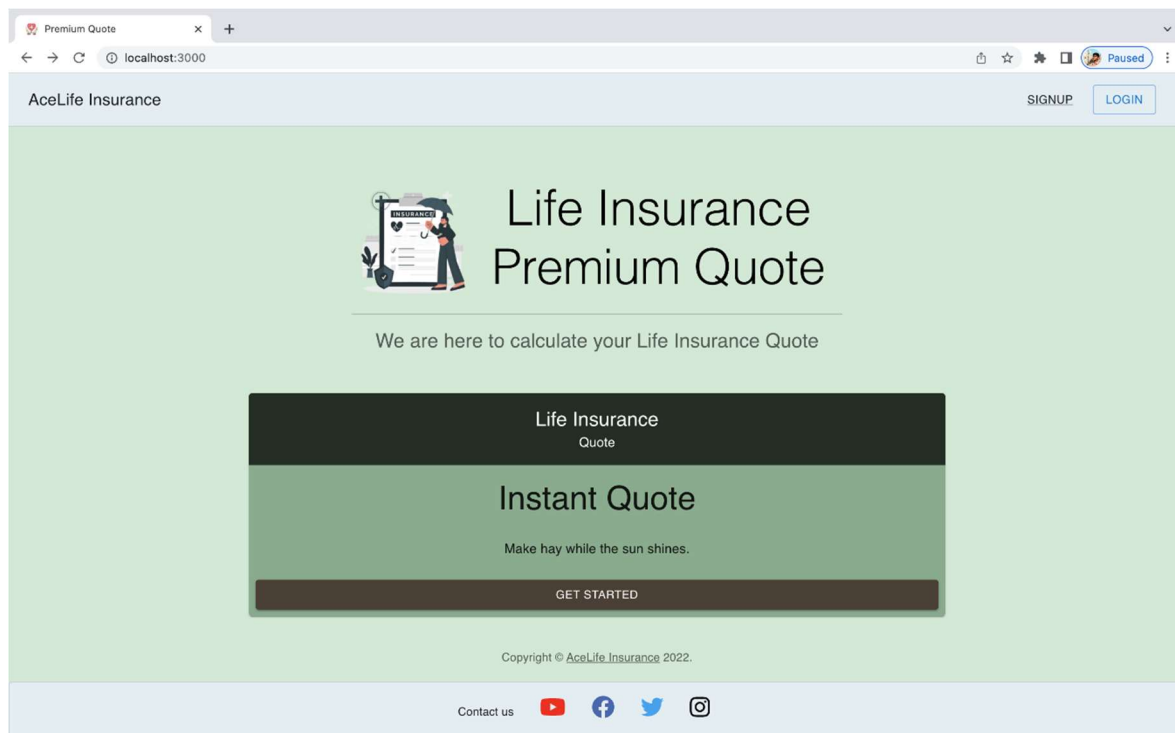
“rating”:5,

“suggestion”:“good”

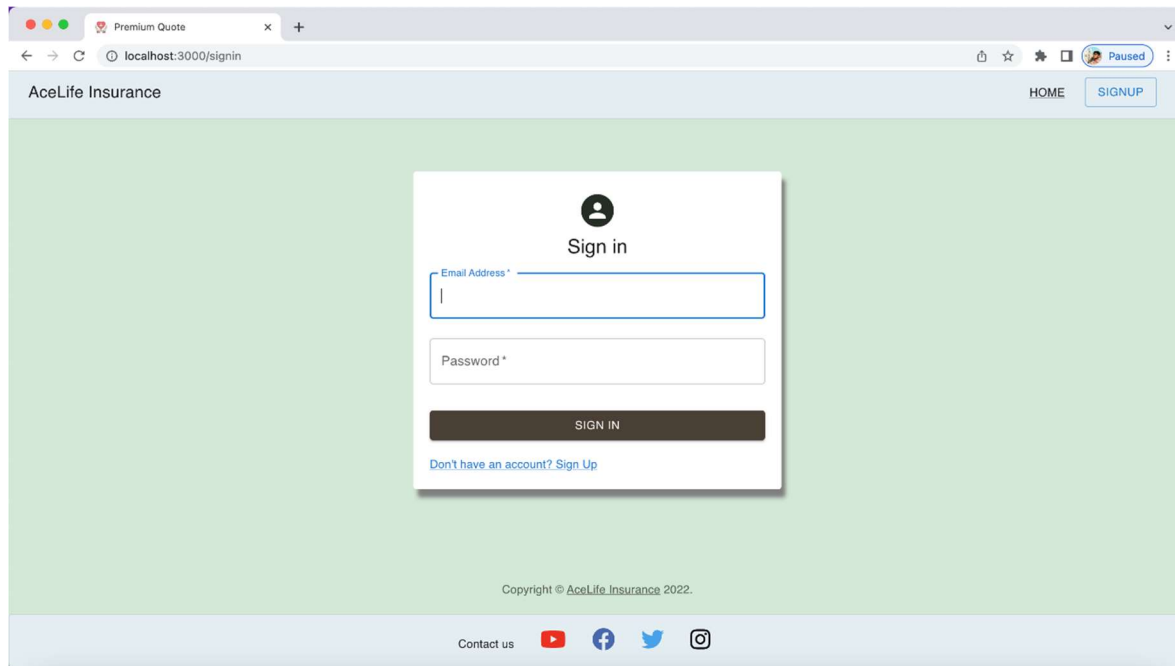
}

## UI Screenshots:

### Home-Screen:



## Sign-in:



The screenshot shows a web browser window with the URL `localhost:3000/signin`. The page header for "AceLife Insurance" includes a "HOME" link and a "SIGNUP" button. The main content area features a "Sign in" form with a user icon, an "Email Address \*" input field, a "Password \*" input field, and a "SIGN IN" button. A link for "Don't have an account? Sign Up" is located below the button. The footer contains a "Contact us" link and social media icons for YouTube, Facebook, Twitter, and Instagram. A copyright notice "Copyright © AceLife Insurance 2022." is positioned above the footer.

Sign in

Email Address \*

Password \*

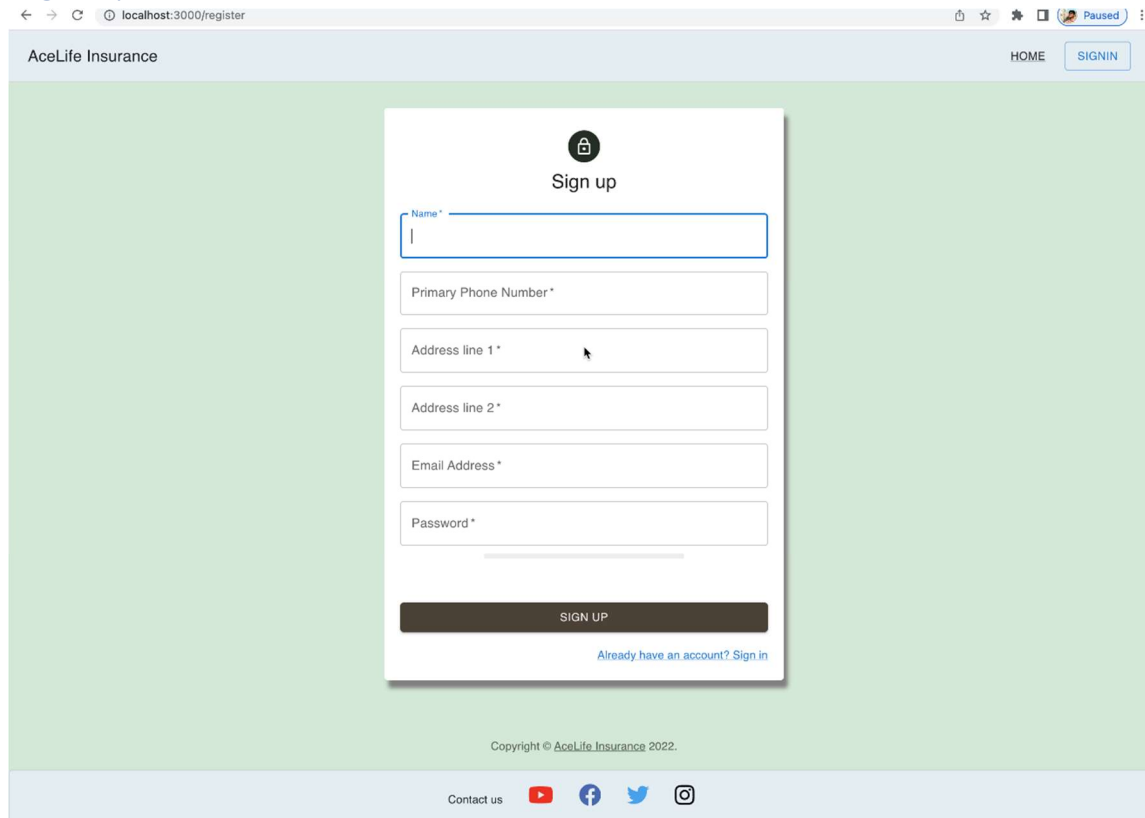
SIGN IN

[Don't have an account? Sign Up](#)

Copyright © AceLife Insurance 2022.

Contact us

## Sign-up:



The screenshot shows a web browser window with the URL `localhost:3000/register`. The page header for "AceLife Insurance" includes a "HOME" link and a "SIGNIN" button. The main content area features a "Sign up" form with a lock icon, "Name \*" input field, "Primary Phone Number \*" input field, "Address line 1 \*" input field, "Address line 2 \*" input field, "Email Address \*" input field, and "Password \*" input field. A "SIGN UP" button is at the bottom of the form, with a link for "Already have an account? Sign in" below it. The footer contains a "Contact us" link and social media icons for YouTube, Facebook, Twitter, and Instagram. A copyright notice "Copyright © AceLife Insurance 2022." is positioned above the footer.

Sign up

Name \*

Primary Phone Number \*

Address line 1 \*

Address line 2 \*

Email Address \*

Password \*

SIGN UP

[Already have an account? Sign in](#)

Copyright © AceLife Insurance 2022.

Contact us



## Dashboard:

The screenshot shows a web browser window with the URL `localhost:3000/dashboard`. The page header includes the logo "AceLife Insurance" and a user welcome message "Welcome : pradeeph@ gmail.com" with a "LOGOUT" button. A notification box says "Logged in!...Welcome". The main content area features a green background with a white box containing the user's name "Hello Pradeep!", phone number "Phone Number: 9985800076", and address "Your Address: Mumbai, Juhu". Below this is a table with three columns: "Submission Id", "Coverage", "Years", and "Premium". The table lists three submissions with their respective details. At the bottom of the main content area is a "GET INSTANT QUOTE" button. The footer contains a "Contact us" link and social media icons for YouTube, Facebook, Twitter, and Instagram.

Submission Id	Coverage	Years	Premium
1	1000000	8	\$ 80.20 / month
2	1500000	15	\$ 58.33 / month
3	2000000	10	\$ 118.33 / month

## Lifestyle:

Premium Quote


localhost:3000/lifestyle

Paused

AceLife Insurance

Welcome : pradeeph@pradeeph@gmail.com

LOGOUT



Let us know some basic information about you.

This information help us to find right insurers for you.

Date of Birth \*

dd/mm/yyyy

Coverage Amount \*

00

Do you have smoke or drink in recent times?

☐ Smoke

☐ Drink

Occupation

☐ Business

☐ Military

☐ Private Sector

☐ Public Sector

☐ Sports

Hobbies

☐ Racing

☐ Sky Diving

☐ Bungee Jumping

☐ Scuba Diving

☐ Others

Medical

☐ Diabaties

☐ Blood Pressure

☐ Cancer

☐ Brain Tumor

☐ Others

Hereditary Diseases

☐ Heart Disease

☐ HighBlood Pressure

☐ Alzheimer


☐ Arthritis


☐ Others


NEXT


Copyright © AceLife Insurance 2022.

Contact us









## Beneficiary:

Premium Quote

localhost:3000/Beneficiary

Paused

AceLife InsuranceWelcome : pradeeph@pradeeph@gmail.comLOGOUT

### Beneficiary Details

Name \*

Age \*

Beneficiary Email \*

Phone Number \*

Tax id \*

Address Line 1 \*

Address Line 2 \*

Relation





Gender

☐ Male ☐ Female ☐ Other

GET QUOTE

Copyright © AceLife Insurance 2022.

Contact us



## Quote:

Premium Quote

localhost:3000/quote

AceLife Insurance

Welcome : pradeeph@pradeeph@gmail.com

LOGOUT

Give Your feedback

Your coverage	Monthly Payment	Yearly Payment	Duration
\$ 2000000	\$ 118.33/month	\$ 1419.94/year	120 Months

FEEDBACK

Contact us

YouTube Facebook Twitter Instagram

## Feedback:

Premium Quote

localhost:3000/feedback

AceLife Insurance

Your logged in as: pradeeph@pradeeph@gmail.com

LOGOUT

Give Your feedback

☆☆☆☆☆

Suggestions\*

SUBMIT

Copyright © AceLife Insurance 2022.

Contact us

YouTube Facebook Twitter Instagram