# PERSONALIZED HEALTH AND WELLNESS ASSISTANT

# WORK BREAKDOWN STRUCTURE

**Course Title –** Software Engineering

**Slot –** G2 + TG2

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**Registration No. –** 22BAI1386

## *Introduction –*

The 'Personalized Health and Wellness Assistant' will serve as a new generation mobile application that will include artificial intelligence and machine learning components to suggest a recommended health and wellness plan based on data inputted by the user. This is a new concept which will include a chatbot and will assist the users with medication and prescription guidance; therefore, the usage of the app will be enhanced while appropriate health support will be provided. The most important one is to educate and give specific recommendations concerning the state of one's health and help to make the right decision.

To accomplish the mentioned above proposed objective of a well-structured and efficient manner of development, Software Development Life Cycle, namely the Incremental Model has been chosen. This way the application is develop in phases including this feedback of users and can be improved gradually by incorporating more features. Thus, when realizing the project in stages, it is also possible to ensure that each of the elements is functional and the final outcome is a usable application that will meet the needs of end-users. It also shows the concrete description of Incremental Model in the framework of the 'Personalized Health and Wellness Assistant', as well as naming all the activities of each phase and their outcomes.

## *Steps to Construct the WBS –*

*Step 1: Identify Major Deliverables and Components –*

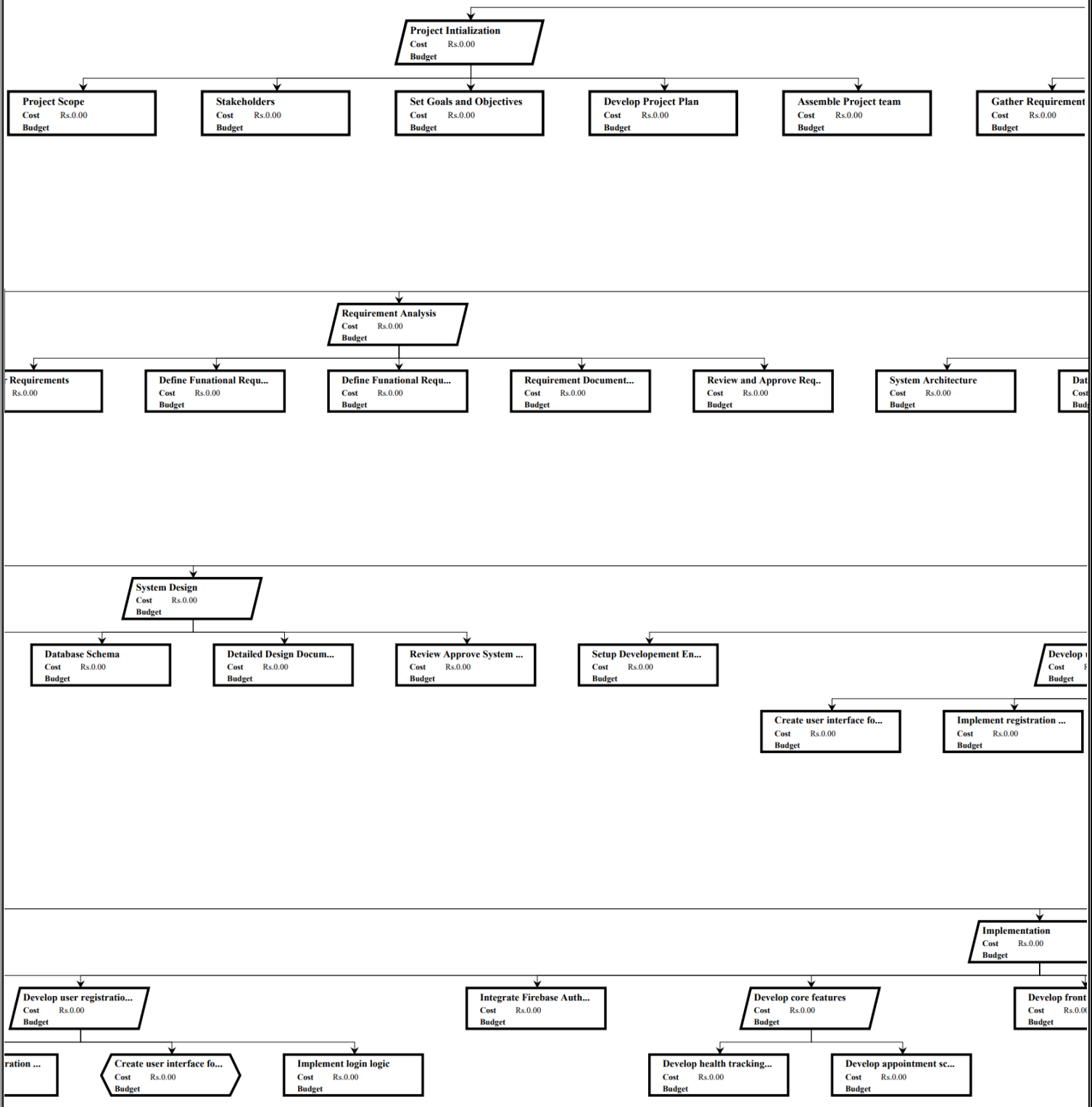
- Project Initialization
- Requirement Analysis
- System Design
- Backend Development
- Frontend Development
- ML Model Development
- Chatbot Development
- Integration of ML Model
- Integration of Chatbot
- Testing
- Deployment
- Maintenance

*Step 2: Break Down Major Deliverables into Subtasks –*

- Project Initialization
  - Project setup
  - Version control setup
- Requirement Analysis
  - Gather requirements
  - Analyze requirements
- System Design
  - Design architecture
  - Design database schema
- Backend Development
  - Set up backend environment
  - Develop API endpoints
  - Implement database
- Frontend Development
  - Set up frontend environment
  - Develop UI components
  - Connect frontend to backend
- ML Model Development
  - Data collection
  - Data preprocessing
  - Model training
  - Model evaluation
- Chatbot Development
  - Design chatbot conversation flow
  - Develop chatbot logic
  - Train chatbot

- Integration of ML Model
  - Integrate ML model with backend
  - Test ML model integration
- Integration of Chatbot
  - Integrate chatbot with app
  - Test chatbot integration
- Testing
  - Unit testing
  - Integration testing
  - User acceptance testing
- Deployment
  - Prepare deployment environment
  - Deploy application
- Maintenance
  - Monitor application
  - Perform updates and fixes

## *Final WBS –*


Project Intialization
Cost Rs.0.00
Budget
Project Scope
Cost Rs.0.00
Budget
Stakeholders
Cost Rs.0.00
Budget
Set Goals and Objectives
Cost Rs.0.00
Budget
Develop Project Plan
Cost Rs.0.00
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Assemble Project team
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Review and Approve Req..
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System Architecture
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System Design
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Database Schema
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Implementation
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Create user interface fo...
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Develop health tracking...
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Develop appointment sc...
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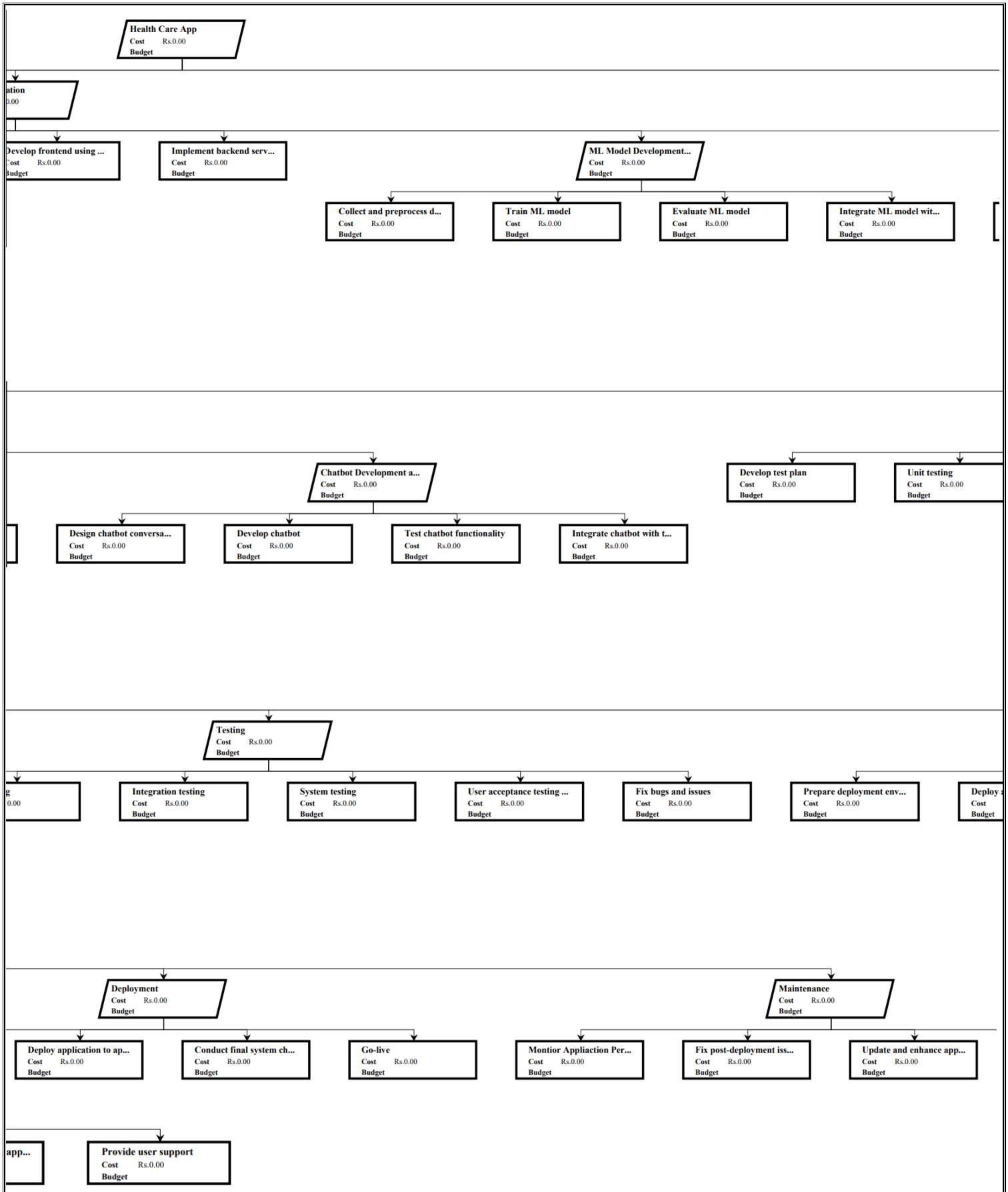
Health Care App
Cost Rs.0.00
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ation
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Develop frontend using ...
Cost Rs.0.00
Budget
Implement backend serv...
Cost Rs.0.00
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ML Model Development...
Cost Rs.0.00
Budget
Collect and preprocess d...
Cost Rs.0.00
Budget
Train ML model
Cost Rs.0.00
Budget
Evaluate ML model
Cost Rs.0.00
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Integrate ML model wit...
Cost Rs.0.00
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Chatbot Development a...
Cost Rs.0.00
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Develop test plan
Cost Rs.0.00
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Unit testing
Cost Rs.0.00
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Design chatbot conversa...
Cost Rs.0.00
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Develop chatbot
Cost Rs.0.00
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Test chatbot functionality
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Integrate chatbot with t...
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Testing
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Integration testing
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System testing
Cost Rs.0.00
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User acceptance testing ...
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Fix bugs and issues
Cost Rs.0.00
Budget
Prepare deployment env...
Cost Rs.0.00
Budget
Deploy
Cost
Budget
Deployment
Cost Rs.0.00
Budget
Maintenance
Cost Rs.0.00
Budget
Deploy application to ap...
Cost Rs.0.00
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Conduct final system ch...
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Go-live
Cost Rs.0.00
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Montior Appliaction Per...
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Fix post-deployment iss...
Cost Rs.0.00
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Update and enhance app...
Cost Rs.0.00
Budget
app...
Provide user support
Cost Rs.0.00
Budget

## *Resource Page –*

| | | Name | RBS | Type | E-mail Address | Material Label | Initials |
|---|---|---|---|---|---|---|---|
| 1 | | ProjectLibre | | Material | | | P |
| 2 | | Version Control System (Git) | | Material | | | V |
| 3 | | UML design tools ( Lucidchart | | Material | | | U |
| 4 | | IDE (IntelliJ IDEA) | | Material | | | I |
| 5 | | Firebase/Firestore | | Material | | | F |
| 6 | | IDE (Android Studio, VS Code | | Material | | | I |
| 7 | | Flutter SDK | | Material | | | F |
| 8 | | IDE (VS Code, PyCharm) | | Material | | | I |
| 9 | | TensorFlow/PyTorch | | Material | | | T |
| 10 | | Dialogflow/Rasa | | Material | | | D |
| 11 | | Automated Testing Tools (Se | | Material | | | A |
| 12 | | Unit Testing Frameworks (JU | | Material | | | U |
| 13 | | Cloud Services (GCP, AWS) | | Material | | | C |
| 14 | | CI/CD Tools (Jenkins, Travis | | Material | | | C |
| 15 | | Monitoring Tools (New Relic, | | Material | | | M |

| Standard Rate | Overtime Rate | Cost Per Use | Accrue At | Base Calendar |
|---|---|---|---|---|
| Rs.0.00 | | Rs.0.00 | Prorated | |
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## *Resource Usage –*

| | Name | Work | Work Contour | Assignmen... | Leveling D... | Cost Rate Table |
|---|---|---|---|---|---|---|
| 1 | ProjectLibre | 0 hours | | | | |
| | *Requirement Analysis* | *115,200,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *System Design* | *4,800,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Project Intialization* | *0* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 2 | Version Control System (Git) | 0 hours | | | | |
| | *ML Model Development and* | *46,167,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Project Intialization* | *86,400,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Implement backend service* | *9,600,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Chatbot Development and* | *25,600,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Develop frontend using Flu* | *28,800,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 3 | UML design tools ( Lucidchart | 0 hours | | | | |
| | *System Design* | *24,000,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 4 | IDE (IntelliJ IDEA) | 0 hours | | | | |
| | *Implement backend service* | *9,600,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 5 | Firebase/Firestore | 0 hours | | | | |
| | *Integrate Firebase Authen* | *14,400,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Implement backend service* | *9,600,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 6 | IDE (Android Studio, VS Code | 0 hours | | | | |
| | *Develop frontend using Flu* | *28,800,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Develop user registration a* | *0* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 7 | Flutter SDK | 0 hours | | | | |
| | *Develop user registration a* | *0* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Develop frontend using Flu* | *28,800,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 8 | IDE (VS Code, PyCharm) | 0 hours | | | | |
| | *Maintenance* | *1,600,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Chatbot Development and* | *355,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *ML Model Development and* | *28,800,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Integrate Firebase Authen* | *14,400,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 9 | TensorFlow/PyTorch | 0 hours | | | | |
| | *ML Model Development and* | *4,196,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 10 | Dialogflow/Rasa | 0 hours | | | | |
| | *Chatbot Development and* | *2,844,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 11 | Automated Testing Tools (Se | 0 hours | | | | |
| | *Testing* | *2,400,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 12 | Unit Testing Frameworks (JU | 0 hours | | | | |
| | *Testing* | *26,400,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 13 | Cloud Services (GCP, AWS) | 0 hours | | | | |
| | *Deployment* | *7,200,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 14 | CI/CD Tools (Jenkins, Travis | 0 hours | | | | |
| | *Deployment* | *21,600,000* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 15 | Monitoring Tools (New Relic, | 0 hours | | | | |
| | *Maintenance* | *27,200,000* | *Flat* | *0 days* | *0 days* | *Rate A* |

# *Task Usage –*

| | Name | Work | Duration | Start | Finish | Work Contour | Assignmen... | Leveling D... | Cost Rate Table |
|---|---|---|---|---|---|---|---|---|---|
| 1 | **Health Care App** | 1,021.989 ... | 88 days? | **1/8/24 8:00 AM** | **2/12/24 5:00 PM** | | | **0 days** | |
| 2 | **Project Intialization** | 112 hours | 3 days? | **1/8/24 8:00 AM** | **5/8/24 5:00 PM** | | | **0 days** | |
| 3 | Project Scope | 16 hours | 2 days | 1/8/24 8:00 AM | 2/8/24 5:00 PM | | | 0 days | |
| 4 | Stakeholders | 16 hours | 2 days? | 1/8/24 8:00 AM | 2/8/24 5:00 PM | | | 0 days | |
| 5 | Set Goals and Objectives | 16 hours | 2 days? | 1/8/24 8:00 AM | 2/8/24 5:00 PM | | | 0 days | |
| 6 | Develop Project Plan | 16 hours | 2 days? | 1/8/24 8:00 AM | 2/8/24 5:00 PM | | | 0 days | |
| 7 | Assemble Project team | 24 hours | 3 days? | 1/8/24 8:00 AM | 5/8/24 5:00 PM | | | 0 days | |
| | *Version Control System (* | *86,400,000* | *3 days* | *6/8/24 8:00 AM* | *8/8/24 5:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *ProjectLibre* | *0* | *0 days* | *6/8/24 8:00 AM* | *6/8/24 8:00 AM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 8 | **Requirement Analysis** | 128 hours | 12 days? | **6/8/24 8:00 AM** | **21/8/24 5:00 PM** | | | **0 days** | |
| 9 | Gather Requirements | 16 hours | 2 days? | 6/8/24 8:00 AM | 7/8/24 5:00 PM | | | 0 days | |
| 10 | Define Funational Requir | 16 hours | 2 days? | 8/8/24 8:00 AM | 9/8/24 5:00 PM | | | 0 days | |
| 11 | Define Funational Requir | 16 hours | 2 days? | 12/8/24 8:00 AM | 13/8/24 5:00 PM | | | 0 days | |
| 12 | Requirement Documenta | 24 hours | 3 days? | 14/8/24 8:00 AM | 16/8/24 5:00 PM | | | 0 days | |
| 13 | Review and Approve Rec | 24 hours | 3 days? | 19/8/24 8:00 AM | 21/8/24 5:00 PM | | | 0 days | |
| | *ProjectLibre* | *115,200,000* | *4 days* | *6/8/24 8:00 AM* | *9/8/24 5:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 14 | **System Design** | 112 hours | 13 days? | **22/8/24 8:00 AM** | **9/9/24 5:00 PM** | | | **0 days** | |
| 15 | System Architecture | 16 hours | 2 days? | 22/8/24 8:00 AM | 23/8/24 5:00 PM | | | 0 days | |
| 16 | Database Schema | 16 hours | 2 days? | 26/8/24 8:00 AM | 27/8/24 5:00 PM | | | 0 days | |
| 17 | Detailed Design Documer | 32 hours | 4 days? | 28/8/24 8:00 AM | 2/9/24 5:00 PM | | | 0 days | |
| 18 | Review Approve System | 40 hours | 5 days? | 3/9/24 8:00 AM | 9/9/24 5:00 PM | | | 0 days | |
| | *ProjectLibre* | *4,800,000* | *0.167 days* | *22/8/24 8:00 AM* | *22/8/24 9:20 AM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *UML design tools (Lucidc* | *24,000,000* | *0.833 days* | *22/8/24 8:00 AM* | *22/8/24 3:40 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 19 | **Implementation** | 333.989 ho... | 21 days? | **10/9/24 8:00 AM** | **8/10/24 5:00 PM** | | | **0 days** | |
| 20 | Setup Developement Env | 16 hours | 2 days? | 10/9/24 8:00 AM | 11/9/24 5:00 PM | | | 0 days | |
| 21 | **Develop user registra** | 40 hours | 5 days? | **12/9/24 8:00 AM** | **18/9/24 5:00 PM** | | | **0 days** | |
| 22 | Create user interface f | 16 hours | 2 days? | 12/9/24 8:00 AM | 13/9/24 5:00 PM | | | 0 days | |
| 23 | Implement registration | 16 hours | 2 days? | 16/9/24 8:00 AM | 17/9/24 5:00 PM | | | 0 days | |
| 24 | Create user interface f | 0 hours | 0 days? | 17/9/24 5:00 PM | 17/9/24 5:00 PM | | | 0 days | |
| 25 | Implement login logic | 8 hours | 1 day? | 18/9/24 8:00 AM | 18/9/24 5:00 PM | | | 0 days | |
| | *IDE (Android Studio, V* | *0* | *0 days* | *12/9/24 8:00 AM* | *12/9/24 8:00 AM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Flutter SDK* | *0* | *0 days* | *12/9/24 8:00 AM* | *12/9/24 8:00 AM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 26 | Integrate Firebase Authe | 0 hours | 0.5 days? | 19/9/24 8:00 AM | 19/9/24 1:00 PM | | | 0 days | |
| | *Firebase/Firestore* | *14,400,000* | *0.5 days* | *19/9/24 8:00 AM* | *19/9/24 1:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |

| | Name | Work | Duration | Start | Finish | Work Contour | Assignmen... | Leveling D... | Cost Rate Table |
|---|---|---|---|---|---|---|---|---|---|
| | *IDE (VS Code, PyCharm* | *14,400,000* | *0.5 days* | *19/9/24 8:00 AM* | *19/9/24 1:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 27 | **Develop core feature** | 64 hours | 8 days? | **19/9/24 1:00 PM** | **1/10/24 1:00 PM** | | | **0 days** | |
| 28 | Develop health tracking | 32 hours | 4 days? | 19/9/24 1:00 PM | 25/9/24 1:00 PM | | | 0 days | |
| 29 | Develop appointment s | 32 hours | 4 days? | 25/9/24 1:00 PM | 1/10/24 1:00 PM | | | 0 days | |
| 30 | Develop frontend using F | 0 hours | 1 day? | 1/10/24 1:00 PM | 2/10/24 1:00 PM | | | 0 days | |
| | *Version Control System* | *28,800,000* | *1 day* | *1/10/24 1:00 PM* | *2/10/24 1:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Flutter SDK* | *28,800,000* | *1 day* | *1/10/24 1:00 PM* | *2/10/24 1:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *IDE (Android Studio, V* | *28,800,000* | *1 day* | *1/10/24 1:00 PM* | *2/10/24 1:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 31 | Implement backend servi | 0 hours | 0.333 days? | 2/10/24 1:00 PM | 2/10/24 3:40 PM | | | 0 days | |
| | *Firebase/Firestore* | *9,600,000* | *0.333 days* | *2/10/24 1:00 PM* | *2/10/24 3:40 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Version Control System* | *9,600,000* | *0.333 days* | *2/10/24 1:00 PM* | *2/10/24 3:40 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *IDE (IntelliJ IDEA)* | *9,600,000* | *0.333 days* | *2/10/24 1:00 PM* | *2/10/24 3:40 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 32 | **ML Model Developme** | 101.99 hou... | 10 days? | **14/9/24 8:00 AM** | **27/9/24 5:00 PM** | | | **0 days** | |
| 33 | Collect and preprocess | 24 hours | 3 days? | 14/9/24 8:00 AM | 18/9/24 5:00 PM | | | 0 days | |
| 34 | Train ML model | 24 hours | 3 days? | 19/9/24 8:00 AM | 23/9/24 5:00 PM | | | 0 days | |
| 35 | Evaluate ML model | 16 hours | 2 days? | 24/9/24 8:00 AM | 25/9/24 5:00 PM | | | 0 days | |
| 36 | Integrate ML model wit | 16 hours | 2 days? | 26/9/24 8:00 AM | 27/9/24 5:00 PM | | | 0 days | |
| | *TensorFlow/PyTorch* | *4,196,000* | *0.146 days* | *14/9/24 8:00 AM* | *16/9/24 9:09 AM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *IDE (VS Code, PyCharm* | *28,800,000* | *0 days* | *14/9/24 8:00 AM* | *16/9/24 5:00 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Version Control System* | *46,167,000* | *1.603 days* | *14/9/24 8:00 AM* | *17/9/24 1:49 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 37 | **Chatbot Developmen** | 72 hours | 8 days? | **27/9/24 8:00 AM** | **8/10/24 5:00 PM** | | | **0 days** | |
| 38 | Design chatbot convers | 8 hours | 1 day? | 27/9/24 8:00 AM | 27/9/24 5:00 PM | | | 0 days | |
| 39 | Develop chatbot | 24 hours | 3 days? | 30/9/24 8:00 AM | 2/10/24 5:00 PM | | | 0 days | |
| 40 | Test chatbot functional | 16 hours | 2 days? | 3/10/24 8:00 AM | 4/10/24 5:00 PM | | | 0 days | |
| 41 | Integrate chatbot with | 16 hours | 2 days? | 7/10/24 8:00 AM | 8/10/24 5:00 PM | | | 0 days | |
| | *Dialogflow/Rasa* | *2,844,000* | *0.099 days* | *27/9/24 8:00 AM* | *27/9/24 8:47 AM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *IDE (VS Code, PyCharm* | *355,000* | *0.012 days* | *27/9/24 8:00 AM* | *27/9/24 8:05 AM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| | *Version Control System* | *25,600,000* | *0.889 days* | *27/9/24 8:00 AM* | *27/9/24 4:06 PM* | *Flat* | *0 days* | *0 days* | *Rate A* |
| 42 | **Testing** | 96 hours | 11 days? | **9/10/24 8:00 AM** | **23/10/24 5:00 PM** | | | **0 days** | |
| 43 | Develop test plan | 8 hours | 1 day? | 9/10/24 8:00 AM | 9/10/24 5:00 PM | | | 0 days | |
| 44 | Unit testing | 16 hours | 2 days? | 10/10/24 8:00 AM | 11/10/24 5:00 PM | | | 0 days | |
| 45 | Integration testing | 16 hours | 2 days? | 14/10/24 8:00 AM | 15/10/24 5:00 PM | | | 0 days | |
| 46 | System testing | 16 hours | 2 days? | 16/10/24 8:00 AM | 17/10/24 5:00 PM | | | 0 days | |
| 47 | User acceptance testing | 16 hours | 2 days? | 18/10/24 8:00 AM | 21/10/24 5:00 PM | | | 0 days | |