

Bachelors of Science in Information Technology

Gyalpozhing College of Information Technology



Gyalpozhing College of Information Technology

Proposal

For

Second Year Project

Bachelor of Science in Information Technology

BMI

Submitted by

TSHERING GYELTSHEN(12190095)

Read carefully before filling the form.

1. Please do not alter the layout of the application form. Information must be filled in the spaces provided, under set format.
2. Guidance notes in various fields should not be deleted.
3. Required information should be duly filled in the specified fields.
4. Required heads/fields which are not relevant to the project should be marked **N/A** (Not Applicable) or left blank and should not be deleted.

Guidelines and Forms

Submission Procedure

Duly filled proposal forms completed in all respects should be submitted in form of soft copy and a hard copy to project guide and project coordinator. On receipt of the applications the proposals will be evaluated by reviewer panel and proposal would then be defended by student groups. The project group may need to revise the proposal in light of the evaluator's recommendations.

For further information, please contact:

Project Coordinator

Jigme Wangmo

jigmewangmo.gcit@rub.edu.bt

Tshering Lhamo

tsheringlhamo.gcit@rub.edu.bt

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Note: To update the table of contents, right click in the table and select '*update field*' and then select 'Update Entire Table'.

Application for Final Year Project**1. Project Identification**

A. Reference Number:	
(for office use only)	
B. Project Title:	
BMI	
C. Project Internal Guide:	
Name:	Sonam Wangmo
Designation:	Lecturer
Organization:	Gyalpozhing College Of Information Technology
Mobile # :	17391134 Tel. # :
Email:	sonamwangmo.gcit@rub.edu.bt
C1. Project External Guide:	
Name:	NA
Designation:	
Organization:	
Mobile # :	Tel. # :
Email:	
C2. Student Group Lead:	
Name:	Tshering Gyeltshen
Roll No:	12190095
Department:	BScIT "B"
Mobile # :	17980119 Tel. # :
Email:	12190095.gcit@rub.edu.bt

D. Organizations Involved in the Project:

(Please identify all affiliated organizations collaborating in the project, and describe their role/contribution to the project.)

D1. Industrial Organizations:

#	Organization Name	Role / Contribution
	NA	

D2. Academic Organizations:

#	Organization Name	Role / Contribution

D3. Funding Organizations:

#	Organization Name	Role / Contribution
	NA	

E. Key Words:

(Please provide a maximum of 5 key words that describe the project. The key words will be incorporated in our database.)

BMI
 BMI Calculator
 bmi
 Easy BMI Calculator
 Healthy BMI

F. Research and Development Theme:

To create an Android application that will help user to check his/her BMI (Body Mass Index). With this app user will be able to calculate BMI easily and will be able to know what he/she should follow.

G. Project Status:

(Please mark ☒)

☒ New ☒ Modification to previous Project

☒ Extension of existing project

H. Project Duration:

Expected Starting Date: 9th February 2021

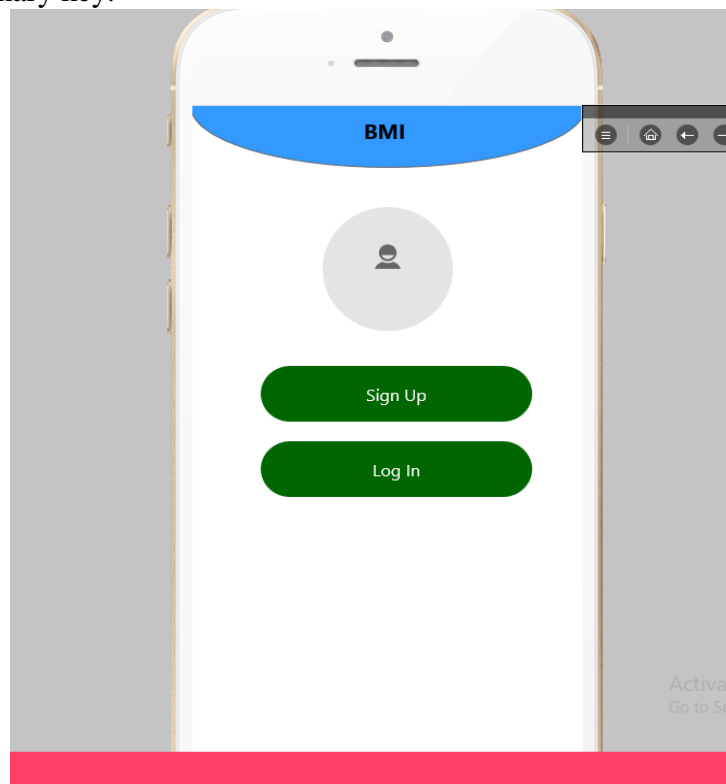
Planned Duration in
months: Four Month

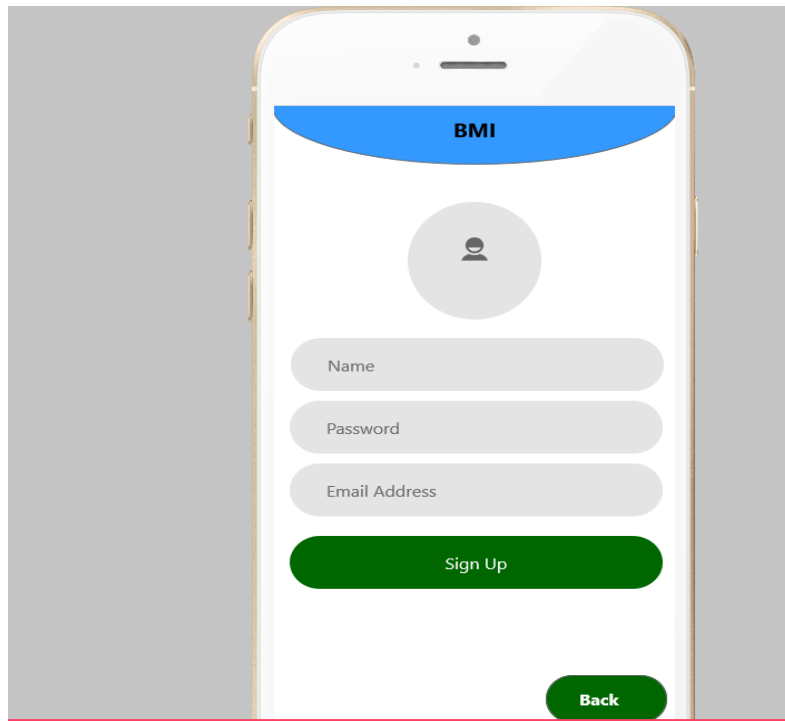
2. Scope, Introduction and Background of the Project**A. Scope of the Project:**

Limited to Bhutan. The main purpose of Project BMI is to ease the pen and paper work for calculating and using website which is time consuming.

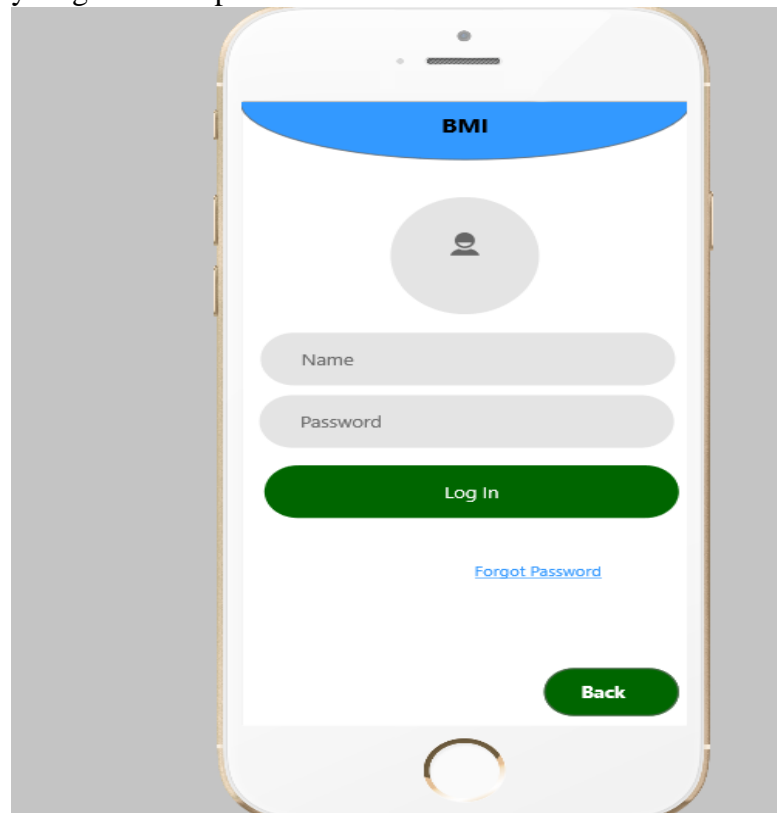
The proposed system consists of the following features:

Sign Up: All the user has to sign up to create account. The main reason for creating account is to check BMI History of particular user so that user can improve based on BMI history. Sign Up page will take data like name, password and email address. The reason for taking email address is for primary key.

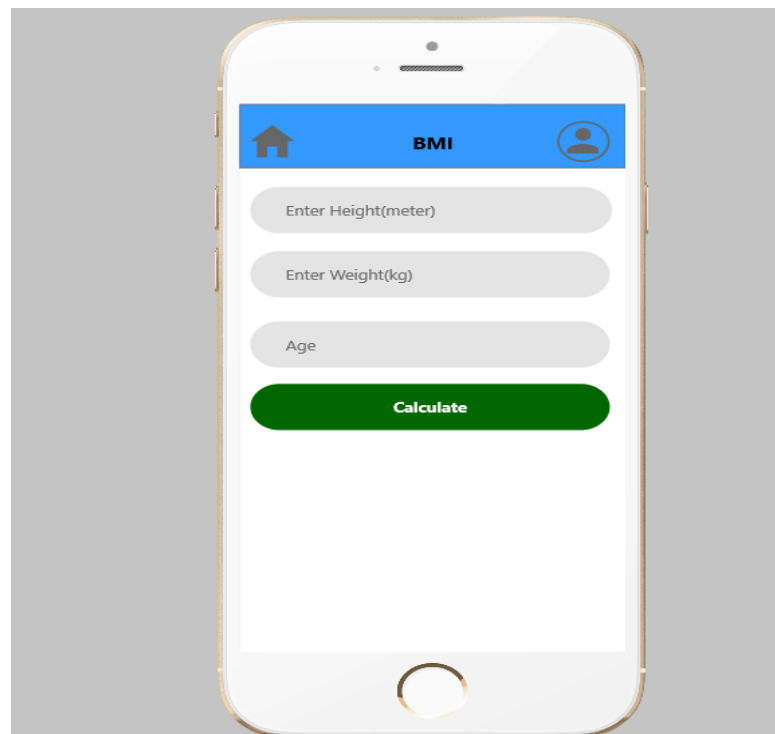
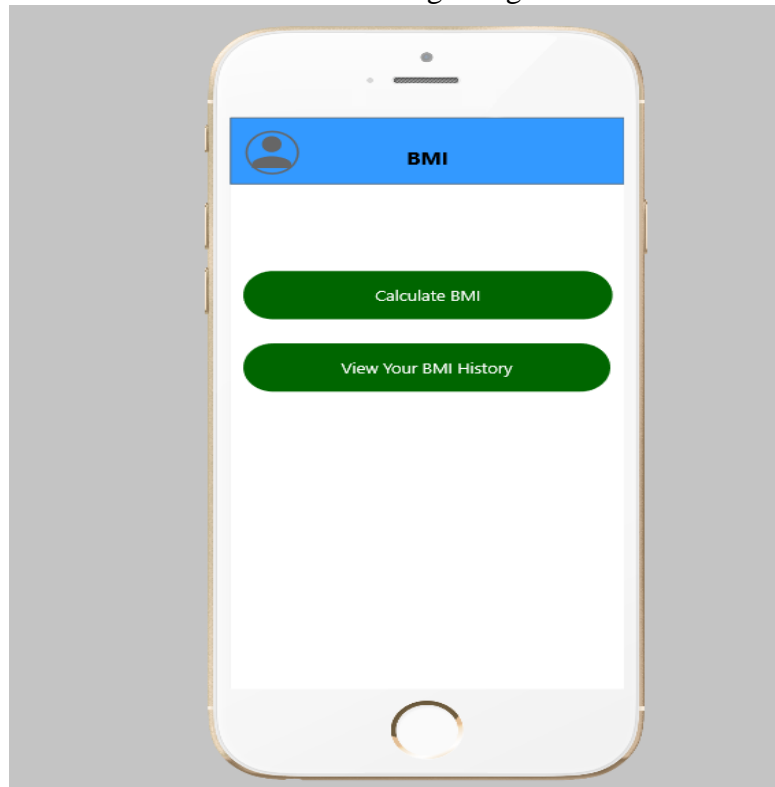




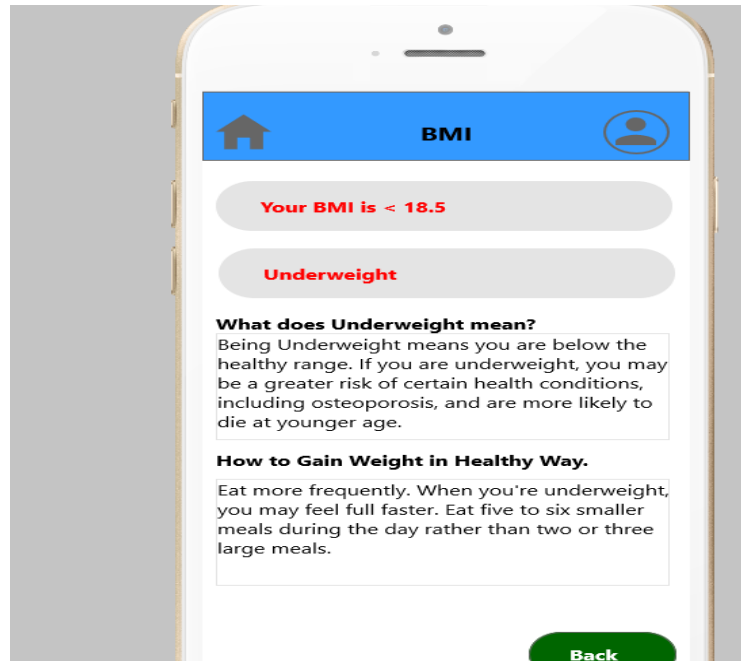
Log In: After signing in he/she can login giving name as username and followed by password. If user have already account he can login. Log In page has forgot password function with it because user may forget his/her password.



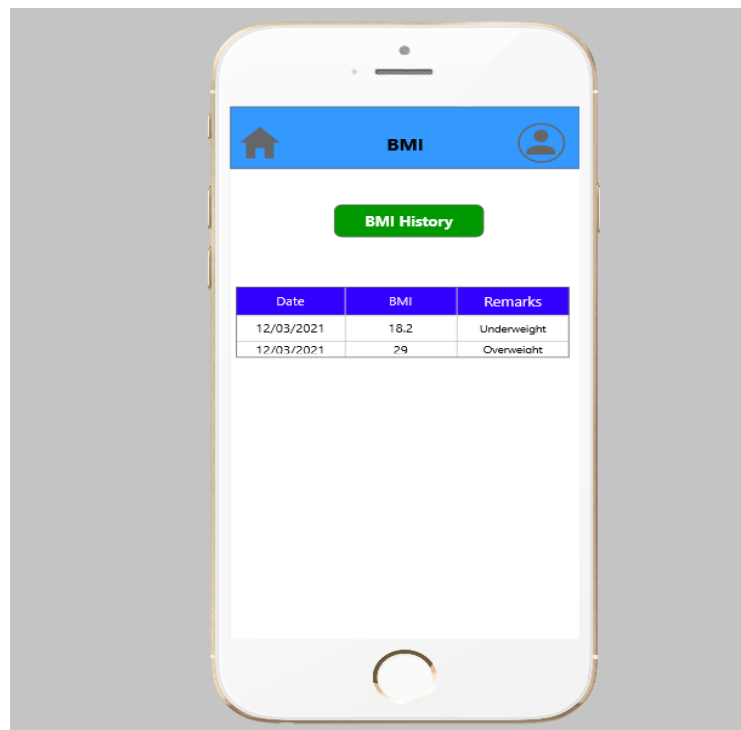
Calculate BMI: User will have option to Calculate BMI and view BMI history. For Calculate BMI page user have to provide height in meter and weight in kilogram. Moreover, it will take age because there is different BMI for different age range.



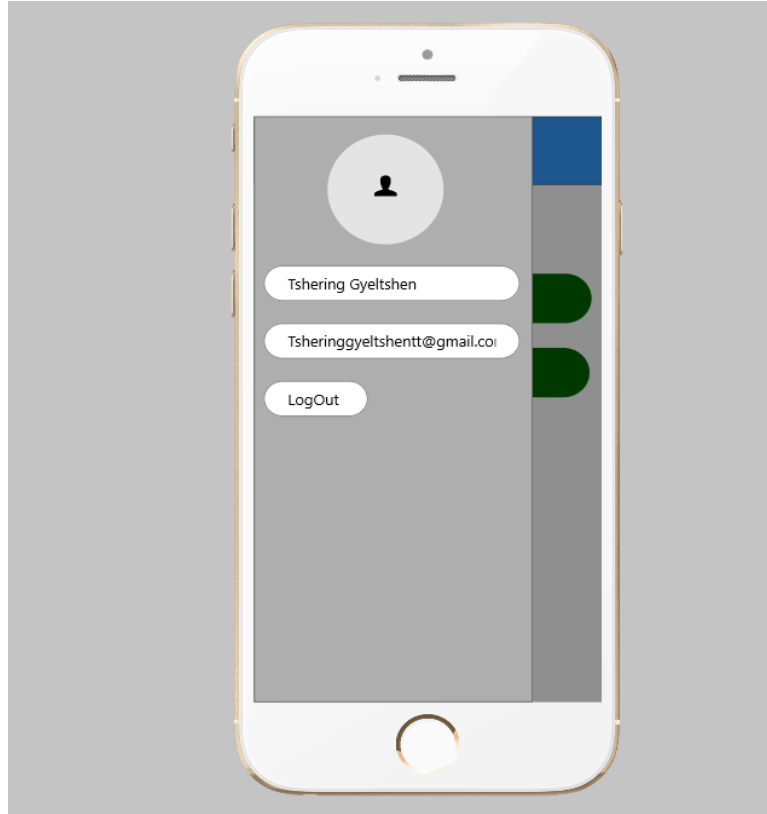
Calculate: There is a Calculate function which calculates BMI using height, weight and age that will show which BMI scale user is lying (underweight (under 18.5 kg/m^2), normal weight (18.5 to 24.9), overweight (25 to 29.9), and obese (over 30)). Moreover, this page will provide information like what user have to follow after lying in particular range and show whether it is good for user or not.



View BMI History: In this page user can view his/her last six BMI calculation. View BMI History will be made because user can improve his/her BMI based on that if he/she is not in good range.



About Me: There will be about me button which will show about user's information like name and email. More there will be log Out option which it will take you to the login page.



B. Introduction (Project Background and Literature Review, Current State of the Art):

(Detailed summary of what all has been done internationally in the proposed area quoting references and bibliography. Please note that this section demonstrates the depth of knowledge of the project team and builds the confidence of the evaluators about capability of the team in achieving the stated objectives.)

(Please describe the current state of the art specific to this research topic.)

Project Background

In this era of the world where technology is taking its toll in modernization, digitization and automation in any field of work is nothing new for us to see. What required excessive traveling and expenditure then now people do things with the tip of their fingers sitting on a couch from their home; all made possible by advancement of technology and introduction of smart phones.

Body mass index (BMI) is a value derived from the mass (weight) and height of a person. The BMI is defined as the body mass divided by the square of the body height, and is expressed in units of kg/m^2 , resulting from mass in kilograms and height in meters. The BMI is a convenient rule of thumb used to broadly categorize a person as underweight, normal weight, overweight, or obese based on tissue mass (muscle, fat, and bone) and height. Commonly accepted BMI ranges are underweight (under 18.5 kg/m^2), normal weight (18.5 to 24.9), overweight (25 to 29.9), and obese (over 30).

In general, the higher your BMI, the higher the risk of developing a range of conditions linked with excess weight, including diabetes, arthritis, liver disease, several types of cancer (such as those of the breast, colon, and prostate), high blood pressure (hypertension), high cholesterol, sleep apnea. According to the WHO, nearly 3 million people die yearly worldwide due to being overweight or obese. To overcome this, BMI calculator is an android app that will help to maintain our Body Mass Index.

BMI app will take height (Meter) and Weight(Kilogram) to calculate BMI of particular user and will provide information like where user lie in BMI scale (underweight (under 18.5 kg/m^2), normal weight (18.5 to 24.9), overweight (25 to 29.9), and obese (over 30)). Moreover, BMI app will have different features which provide user information like what user have to follow according to BMI scale they lie and BMI History, which is different from pre-existing BMI Calculator.

Literature Review:

Body Mass Index (BMI) is calculated by dividing weight (in kilograms) by (height)² (in metres²). The World Health Organization defines overweight as having a BMI value of 25.0 to 29.9, while a BMI of greater than 30 is considered obese. A BMI value of 18.5 to 24.9 is generally considered normal, and a BMI less than 18.5 is defined as underweight.

BMI: Be calculative in your life! (Koshini, Shu Min, Le Shan) explains BMI as simple, quick, effective and applies to all. The calculation of BMI is the same for both male or female, adult or otherwise. It requires only quick measurement of both the height and weight, followed by a simple calculation which can be computed manually on paper or through the internet.

The BMI Calculator App (Ahmed Abdulhasan Mahdi, Shibani Kulkarni) explains BMI Calculator App is software applications which avoids more manual hours that need to spend in personally calculate and find the BMI for a particular person at a single click. This application keeps both the standard in it i.e., American standard and Indian standard too. This app gives us all the information in both the standards which is not given in existing app.

Easy BMI Calculator (Codium App Ideas). This Easy BMI Calculator Android application takes age, weight and height. After calculating BMI it displays where that user lies in BMI Scale but does not shows what that particular scales means. Moreover, it does not show what that person have to do and follow after lying in that particular BMI scale (Underweight, normal, overweight, obese). There is no BMI history to keep track.

The main difference between Easy BMI Calculator and BMI app that is going to develop are BMI history. BMI history will show six history of user including particular date and BMI value. Other difference is BMI will show what things and have to follow after lying on that particular BMI scale.

Current State of the Art: There is many BMI calculators which calculates BMI (Body Mass Index) and show where they lie. But not a single BMI shows what that values mean and does not keep history so that user can improve based on BMI calculation history. Moreover, it does not show what user have to do after lying on that particular scale. So to overcome those challenges after all these observations and experiences, it leads to the idea in creating this app where users can improve their health and helps in staying healthy.

C. Challenges:

(Please describe the challenges, specific to this research topic, currently being faced internationally.)

Meeting the time schedule: Completing the project within the given time period.

Device compatibility: Challenges of ensuring that app works on the android smartphone.

Security issues: Keeping in mind about developing the app which is trustworthy and secure.

D. Motivation and Need:

(Please describe the motivation and need for this work.)

Many people use pen and paper to calculate BMI and few people uses website to calculate BMI. Many pre-existing BMI app does not show history of BMI of user which gives nothing for user to improve. In other words, it does not provide feedback and explanation after calculating. Sometimes calculating in pen and paper land up making mistake. Some people don't know how to calculate BMI. Moreover, nearly 3 million people dye yearly worldwide due to being overweight or obese. All these observations and experiences leads to the idea to create this app.

3. Aim and Objectives of the Project

(Please write the actual aim of your project. Also, describe the measurable objectives of the project and define the expected results. Use results-oriented wording with verbs such as 'to develop..', 'to implement..', 'to research..', 'to determine..', 'to identify..' The objectives should not be statements and should not include explanations and benefits. The objective should actually specify in simple words what the project team intends to achieve (something concrete and measurable/deliverable). Fill only those objectives that are applicable to the proposed project.)

AIM: To build android application which calculates BMI (Body Mass Index) and provide feedback based on their BMI values.

OBJECTIVES:

The specific objective of this project are:

1. to build android application that will be used by everyone to keep their body healthy.
2. to exclude pen and paper works.
3. to save time (easily accessible).

4. Methodology

A Development / Research / Test Methodology:

(Please describe the technical details and justification of your development and research plan and test plan and testing strategies. Identify specialized equipment, facilities and infrastructure which are required for the project and their utilization plan. The block diagrams, system flow charts, high level algorithm details etc. have to be provided in this section. Also, describe the overall methodology to be used for the particular research topic)

Requirement Gathering

Firstly, requirements will be gathered through books, websites and further discussing with the project guide. Moreover, information will be gathered going through pre-existing app and WHO (World Health Organization) website.

Requirement Analysis

In this stage, there will be further analyzing the gathered requirements and will eliminate some unnecessary requirements and take in new requirements if any.

Design

Taking into account of requirements from the requirement analysis, there will be starting with the designing of prototype as well as ER diagram for our project.

Coding

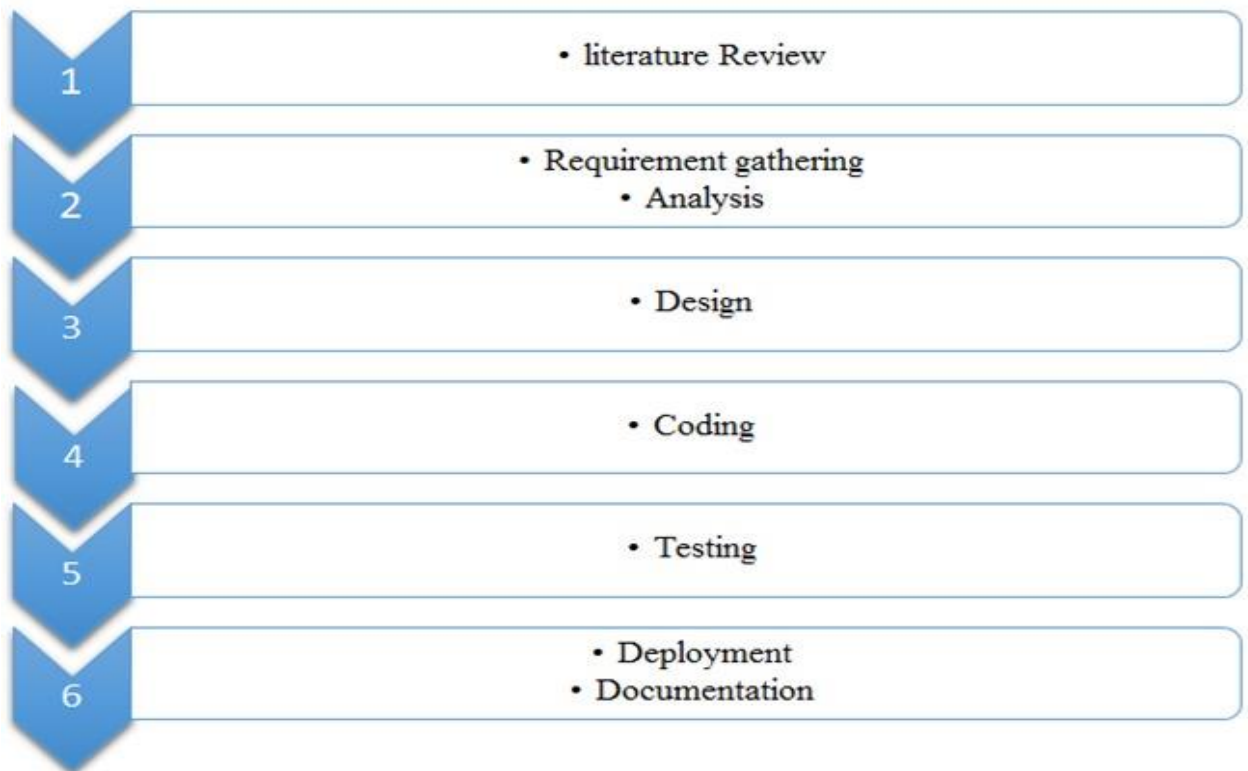
After requirement gathering and designing is completed designing the prototype, we will start with implementation where we will be developing the app using android studio with programming language like java.

Testing

Each functionality will be tested right after it is developed. The process of testing each functionality separately is called unit testing. Unit testing will be carried out thoroughly for each module followed by integration testing, system testing and acceptance testing. If any functionality doesn't work as expected, it can always go back and verify from the previous phases.

Agile model

Agile model refers to a software development approach based on iterative development. Agile methods break tasks into smaller iterations, or parts do not directly involve long term planning. The project scope and requirements are laid down at the beginning of the development process. Plans regarding the number of iterations, the duration and the scope of each iteration are clearly defined in advance. The division of the entire project into smaller parts helps to minimize the project risk and to reduce the overall project delivery time requirements.



B. Project Team:	
<i>Title / Position</i>	<i>Number</i>
Project Internal Guide	
Project External Guide	
Student Team Members	
Others (please specify)	
Add more rows if required	

C. Project Activities:

(Please list and describe the main project activities, including those associated with the transfer of the research results to customers/beneficiaries. The timing and duration of research activities are to be shown in the Gantt chart in Section 8.)

Installation of software and tools: Installing android studio latest version or bootstrap framework and database server.

Resource gathering: Gathering resources like research paper, book, video tutorials, and online research on app development.

Design phase: The system design shows the blueprint of any system that is to be developed. It gives the very detail about every components of the system that is to be built like designing user interface, functionalities, and flow of information.

Development of app: From this stage we will develop app using Bootstrap and android studio framework.

Testing: It will go under testing stage where each unit is check properly regarding functionality and it endure to produce desire function.

Documentation: After completing all phases we will document the project report and we will present it through presentation.

D. Key Milestones and Deliverables:

(Please list and describe the principal milestones and associated deliverables of the project. A key milestone is reached when a significant phase in the project is concluded, e.g. selection and simulation of algorithms, completion of architectural design and design documents, commissioning of equipment, completion of test, etc.) The timing of milestones is also to be shown in the Gantt chart in Section 8.

No.	Elapsed time from start (in months) of the project	Milestone	Deliverables
1	09/02/2021-13/02/2021	Topic selection	Accepting project topics.
2	13/02/2021-14/03/2021	Proposal preparation and Brainstorming	Project proposal
3	20/03/2021-10/04/2021	Requirement gathering, analysis and design	Software requirement gathering document and prototype development
4	11/04/2021-20/04/2021	System Design	Coding and features implemented
5	20/04/2021-30/04/2021	Testing Implementation	Test Case
6	01/05/2021-25/05/2021	Final Documentation	Documentation is ready

(Please add more rows if required.)

5. Benefits of the Project (Expected output/outcomes):**Some of the Benefits are:**

Inclusion: Through our app all user will be able to view BMI history so that he can improve based on that.

Accessibility: Provide a fast and efficient interface for easy access to the concern authority.

Flexibility: App will provide services at any point of time, and anywhere.

Satisfaction: User will achieved satisfaction as all calculation of BMI will provide feedback for improvement and able to maintain healthy BMI.

6. Risk Analysis/Feasibility**A. Risks of the Project:**

(Please describe the factors that may cause delays in, or prevent implementation of, the project as proposed above; estimate the degree of risk.)

(Please mark ☒ where applicable)

	Low	Medium	High
Technical risk		<input checked="" type="checkbox"/>	
Timing risk			<input checked="" type="checkbox"/>
Budget risk	<input checked="" type="checkbox"/>		

A1. Comments(Describe the risk):

Timing risk: Developing the application within the given time frame would be a difficult task for us as

- ✓ Our project time period is less.
- ✓ Being this our first attempt in developing an android application completing as per schedule will be difficult.
- ✓ We will not be able to achieve our goal due to external college activities.

Technical risk: Risk associated with the software development. Some of the technical risk are as follows.

- ✓ Learning how to use software and other sophisticated hardware tools will be hard job as it is our first approach.
- ✓ It will be difficult for us to handle any crashes or malfunction in software as we are not use to it.

Budget Risk: We don't have budget risk because we don't have to buy any software or technology. Our project can be done using free software available on internet.

(Approval of Project Proposal by the Competent Authority (Department Chairman) and Project Review Team is mandatory before the start of project execution.)

Sl #	Name	Signature
------	------	-----------

& stamp:

8. Reviewers Panel Comments

13. Report Writing Guidelines

(Project report will be written under the specified guidelines.)

Bibliography

- [1] Gartner Identifies the Top 10 Consumer Mobile Applications for 2012 <http://www.gartner.com/newsroom/id/1230413> Accessed on 1 August 2016
- [2] Gartner Identifies the Top 10 Strategic Technology Trends for 2014 <http://www.gartner.com/newsroom/id/2603623> Accessed on 1 August 2016
- [3] Greenspun H and Coughlin S 2012 mHealth in an mWorld How mobile technology is transforming health care (Washington: Deloitte Development LLC)
- [4] Robert S, Joana N B and Seth Y F 2013 Design and Development of a Personal Health Monitoring System on Android Mobile PlatformInt. J. of Engineering Sci. and Technol.5 1313- 20
- [5] Rao V S and Krishna T M 2014 A Design of Mobile Health for Android Applications American J. of Engineering Research3 20-9
- [6] Madariaga N E Q and Linsangan N B 2016 Application of Artificial Neural Network and Background Subtraction for Determining Body Mass Index (BMI) in Android Devices Using BluetoothInt. J. of Engineering and Technol.8 366-70
- [7] Sommerville I 2016 Software Engineering ed M Horton (Essex: Pearson) chapter 2 pp 47