Department of Computer Science & Engineering, Govt. Engg. College – Wayanad
CS451 Project Preliminary – Topic Submission Form
August 2019 – November 2019

1. **Group Number:15** **Programme:** B.Tech **Batch:** 2016 Adm.
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6. **Guided by: Dr. Gilesh M P**
7. **Area: Machine learning**
8. **Title of the work: AROGYAM : The Disease Prediction App**
9. **Proposal:**

A. Problem Context
Tuberculosis is a deadly disease, which spreads from person to person through microscopic droplets released into the air. The TB Centre of Wayanad is planning to eradicate TB from the district by 2021.
To accelerate the efforts we are associating with the TB Centre to develop a software cum mobile app to accurately spot the individuals susceptible to TB from their socio-economic conditions. There are multiple channels to collect information about the conditions such as surveys and personal data entry. Monitoring the TB patients and managing the field survey data is also important.

B. Problem Statement:
The TB Centre of Wayanad is planning to eradicate TB from the district by 2021. People in Wayanad are not aware of TB and illiterate of the services provided by the health department and they are not willing to consult the doctors and take treatment in case of possible symptoms. There should be a mechanism to diagnose and treat TB proactively from the causal symptoms.

10. **Objectives:**

O1: To develop skills in doing literature survey, technical presentation, and report preparation.
O2: To enable project identification and execution of preliminary works on final semester project.
O3: To provide an android application and a web app for monitoring TB patients and providing awareness.
O4: To predict the chance of getting TB for a person based on the symptoms using machine learning.

11. **Correlation to course outcomes:**

CO1: To estimate the ability of the student in transforming the theoretical knowledge studied so far into a software product.

CO2: Acquire practical knowledge within the chosen area of technology for project development.

CO3: Perform requirement analysis and identify design methodologies.

CO4: Contribute as an individual or in a team in development of technical projects.

CO5: To develop skills in doing literature survey, technical presentation and report preparation.

CO6: Understand the importance of Computer Engineering solutions in societal and environmental context, and demonstrate the knowledge of and need for sustainable development.

	CO1	CO2	CO3	CO4	CO5	CO6
O1	✓	✓	✓	✓	✓	✓
O2	✓	✓	✓	✓		✓
O3	✓	✓	✓	✓		✓
O4	✓	✓		✓	✓	✓

12. **Related Works:**

- ASCVD Risk Estimator Plus

13. **Methodology:**
Two Android applications will be developed using Android Studio and Firebase - one for the naive users and another for the Aasha Workers. These apps will be used to collect the data of TB patients as well as from the general public who are vulnerable to TB. We use this data to train a machine learning model using Tensor flow in google cloud such that it can predict the upcoming patients from the first android app we developed.
We propose to provide a web app which is used by higher-level officials for understanding the data collected in real-time using the above applications and can be used to prevent or to act upon a possible TB outbreak.

14. **Expected result and performance evaluation strategies:**

- Monitoring and detection of TB patients.
- Prediction of potential TB patients.
- Creating health awareness among general public.

15. **Hardware and software requirement:**
Hardware needed:
System: Pentium IV 2.4 GHz or above
Hard Disk:40 GB or above
RAM: 4GB or above
Software needed:-
Operating System : Linux
Developing Environment: Android Studio,IDE,TensorFlow,Firebase,Google Cloud Platform
Coding language: Python,Java,Kotlin.

16. **Plan of Action:**
Mini Project:

Sl No.	Work to be completed	Date	Approval by Guide
1	Meeting with TB specialist	04/10/2019	
2	Identifying the data to be collected from the users	05/11/2019	
3	Identifying data to be collected from Aasha Workers	05/11/2019	
4	Making Demo apps and presenting it for approval	14/11/2019	

Main Project:

Sl No.	Work to be completed	Date	Approval by Guide
1	Making Web app for required insights of the data	10/01/2020	
2	Releasing the final Application for public after testing and making required change in demo application	03/02/2020	
3	Making machine learning model for prediction	18/03/2020	
4	Including machine learning capabilities for predicting TB using the collected data from users	07/04/2020	

17. **References:**

[1] N.K.Gupta Ekata Gupta, A.Q.Ansari. Adaptive neurofuzzy system for tuberculosis. 2012.

Date of approval:16/10/2019

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Note:- Use these e-mail ids for communication. Communication send to any other address is invalid or is not part of project correspondence.