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<thead>
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<th>Name of the College: <strong>JAWAHARALAL NEHRU NATIONAL COLLEGE OF ENGINEERING</strong></th>
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<tr>
<td>2.</td>
<td><strong>Project Title:</strong> &quot;Bliss-Boost AI Chatbot to trace out Depression, Anxiety and Alzheimer’s&quot;</td>
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<td>3.</td>
<td><strong>Branch:</strong> COMPUTER SCIENCE AND ENGINEERING</td>
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<td>4.</td>
<td><strong>Broad Theme / Category (as per KSCST poster):</strong> Machine Learning powered AI Chat Bot for tracking mental health</td>
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| 5. | **Name(s) of project guide(s):**  
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|---|
| 7. **Keywords:**  
Neuropsychological test, Anxiety, Depression, Cognitive behavioral therapy, Body mass index. |
| 8. **Introduction:**  
Computer Science has always helped man in making life easier. There are various approaches emerging to make the computer to interact intelligently. A chatbot is a service that people interact with via a chat interface. The queries in terms of text or voice will be responded. The chatbot will usually respond in a conversational style, and it may carry out actions in response to the conversation. It often runs inside a popular messaging application, such as Facebook Messenger, Slack, or SMS. The proposed work aims to extend the idea of chatbot interaction to medical aid.  
The proposed system is highly automated and programmable device-level diagnostics tool that provides a framework to define the mental health disorder of a person. This system takes the health parameters of a user that act as a key parameter for knowing the symptom of a disorder in a person. |
| 9. **Scope / Objectives of the project:**  
The project “Bliss-Boost” aims at providing intelligence in giving notifications, schedules and suggestions as soon as an individual chat with the bot. This bot monitors daily, one-on-one interactions with the users using machine learning to deliver a self-guided version of cognitive behavioural therapy (CBT), which is the most effective treatment for mental health problems. The busy hectic schedule of working men and women increases the chances of depression and anxiety. The elderly people may feel lonely and they may forget their daily chores which may cause Alzheimer’s. This bot tracks mental health of people, traces the frame of mind and allows them to be instructed of daily (habitual) activities. Old-aged people may have to depend on others for any sort of workupdates/daily schedules. This system is motivated towards making these people self-dependent. Further, this bot assists the people about the timely diagnosis if it finds symptoms of depression, anxiety and Alzheimer’s. This project aims to provide a smart and efficient AI based solution to fulfil the following objectives:  
- Incorporates smart phone apps into therapy.  
- Real time and dynamic updation of alerts and notifications.  
- Track the mood changes and respond accordingly.  
- Accessible 24/7 and helps to feel better. |
10. **Methodology:**

Bliss boost is the Symptom Checker Chatbot, that aims to provide user with relevant health and triage information based on their symptoms. Bliss boost is powered by artificial intelligence not to tackle deepest problems of user, but to improve mood, and even alleviate symptoms of anxiety and depression. It concentrates on techniques from cognitive behavioural therapy (CBT), an effective form of therapy that focuses on understanding the relationship between thoughts and behaviour. This chatbot is the intersection of mental health care and technology. This project proposes a conversational Healthcare bot that is designed to provide information to the user regarding their mental health and provide solution up to an extent level.

The system first captures the health status of the user. By health status it suggests weight, height, age, gender etc. After capturing this information of the user, the system performs the psychological tests which includes anxiety test, depression test.

By performing anxiety test it checks the anxiety disorder present in the person. An Anxiety disorder is a group of mental disorders characterized by significant feelings of anxiety and fear. It is a worry about future events, and fear is a
reaction to current events. People often have more than one anxiety disorder. Depression is a state of low mood and aversion to activity. It can affect a person's thoughts, behavior, motivation, feelings, and sense of well-being. It may feature sadness, difficulty in thinking and concentration and a significant increase/decrease in appetite and time spent sleeping, and people experiencing depression may have feelings of dejection, hopelessness and, sometimes, suicidal thoughts. so therefore, for testing the depression present in a person certain depression tests are carried out.

After requirement analysis, designing, implementing and testing the calculation for disease risk is performed and a respective action plan is given. An action plan includes booster, progress tracker which helps the person to boost themselves by collecting hobbies of a user and suggesting them to perform certain activities regarding their hobbies so that their mood is refreshed.

11. **Results and conclusion:**
The result obtained for the proposed approach are listed below.

- **Anxiety Test**
In this test several set of questions are asked to the user for calculating the percentage of risk of anxiety. This percentage is calculated by assigning scores to the answer of each question generated from the responses of user. Some example questions are:
  - Do you find yourself worrying or being afraid a lot?
  - Are you generally impatient?

- **Depression Test**
In this test several set of questions are asked to the user for calculating the percentage of risk of depression. This percentage is calculated by assigning scores to the answer of each question generated from the responses of user. Some example questions are:
  - Little interest or pleasure in doing things?
  - Poor appetite or over-eating?

- **Booster**
This characteristic helps user to boost the mood of person when he/she feels low. Some of the activities listed to boost the mood of a person are singing, dancing, reading, painting, gardening etc.

- **Body Mass Index (BMI) calculation**
It takes input values like age, height and weight and calculates the BMI or indicant of a user.

- **Remainder**
This feature is used to schedule task for a particular time. The task is
reminded at that scheduled time by notifying to the user.

- **Mood Based Analysis**
  It tracks the user’s mood at an instant of time and plots a graph which has time as X-axis and mood as Y-axis and thus helping the user to know about his/her mood variations.

12. **Future scope:**
- Based on Mood based analysis results, tracking of anxiety and depression can be done.
- Intelligently interact with user to overcome the neuropsychological disorders like anxiety or depression.