FOR YOU : A SELF CARE BASED APP

Our problem statement is to Promote self-care among students and to enhance the overall well-being including mental, physical and social health. Our self-care application focuses on the school going students and university students to promote self care among them and motivate them to improve their social, physical and mental activities.

Our app is divided into 4 levels :

The application provides following features:

Chatbot for general conversation and identifying interest of a student

To-do List for achieving daily targets which will include physical , mental and social well being.

Menstrual Cycle for tracking their menstruation and suggesting exercise , diet & do's during that period.

To track **Sleep Cycle** of students & give information regarding sleep hygiene.

Depression Detection for identifying students with depression and suggesting therapists.

Calorie Counter to student's calorie intake per day in order to stay healthy

Now Cast for achieving social well being of the student & motivating them to do self care.

Relaxing Activities for managing stress of students and helping them to relax.

Special Needs (for Divyang Students) for reducing inferiority complex & motivating them.

 Let's have a Conversation (Therapists, if required) for consulting the therapist.

To educate students on **Good touch and Bad touch**.

To help students to cope up and **fight their fears.**

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CHATBOT:

For foundation and preparatory level: Our Chatbot provides a choice based questionnaire for students. Each question comprises three choices for students to choose. The chatbot through questionnaire target following objectives :

Bullying detection

Suggest activities

For Bullying detection, the Chatbot asks a series of questions related to interaction with other students, school bus experience etc. After analysing the response of students, if Chatbot finds that there is some bullying happening with the student the parents would be notified about the same.

We have informative sections regarding bullying detection and fear identification named fight your fear. If any such behaviour is detected the user

would be directed to these sections depending upon their choices so that they could watch the content and cope up their fears.

For class 6th onwards

CHATBOT:

Chatbot named Kiki is used to take user responses. These responses are first tested if found positive would be stored and later on fed to the recommendation system that will give the recommendations depending upon the conversation with the user.

Objectives:

To update the interests of the user.
To provide recommendations on activities.
To take feedback regarding features of the app.

Technology:

Bot responses: deep learning
Sentimental Analysis using VADER (for checking user responses)
Recommendation System

Explanation:

Whenever a response is received form chatbot it is preprocessed and then fed to a deep learning model which is RNN i.e. Recurrent Neural Network(since user-response is textual data). *Recurrent* as the name suggests means the output at the current time step becomes the input to the next time step. At each element of the sequence, the model considers not just the current input, but what it remembers about the preceding elements.

Trained chatbot produces a response depending upon the student's input.
Student's input is further evaluated using VADER(SentimentIntensityAnalyser) It would associate polarity scores to a particular text. If found positive is stored and later on fed to the recommendation system which uses the cosine_similarity function to map the most relevant suggestions. If a similarity score for a particular feature is found to be more than 0.6 that particular activity would be suggested to the user.

Personalised TODO(4th to university level)

Mode of Self care of each person is different. To cover this domain, and increase student interaction and involvement, the app provides a personalised to-do list, that is generated on the basis of student interests, and past activities on the app. At the time of registration, we'll take student's interests as input. To-do list will be sorted on the basis of their interests as well progress in these interests that is stored in firebase. This todo list will be updated in real time on a daily basis. After completion of activities from their to-do list, timely feedback will be taken from student, to make better

recommendations. Average progress of each activity will be stored on weekly basis, for better recommendation in to-do list. As activities in to-do lists will be completed, students will receive points which can be used to organise therapy sessions with counsellors.

This app also consists of a personal todo list, whose contents are generated by students themselves. These personal goals, if not completed the same day, will shift to the next day.

There will be a section of trending activity, where activity done by most of the students of the app will be shown.

A recommended list of activities will also be generated based on the student's interaction with chatbot.

Age wise todo list:

Classes	Features
Nursery to 3rd	No todo list
4th to 8th	Personalised todo list based on interests and progress Trending activities Rewards
9th and 10th	Personalised todo list based on interests and progress Recommended activities based on interaction with chatbot Trending activities Rewards
11th onwards	Personalised todo list based on interests and progress Recommended activities based on interaction with chatbot Personal todo list Trending activities Rewards

MENSTRUAL CYCLE :

We had provided a special section for our female users that is tracking and giving information to them regarding the menstrual cycle. This is an important self care +activity because girls at a young age generally don't have information regarding menstruation. This feature keeps track of their menstrual cycle and predicts their upcoming dates accordingly. The app will

also recommend the diet and exercise during this period. Here we had also added a comic section through which we will provide awareness regarding menstruation and puberty to young girls.

At the start, the app will take input as bleeding days, cycle dates and last period date. In case , the period date is being delayed or arrived before the actual date then by clicking on the button they can reset the date. A notification will be given on the arrival of the period.

SLEEP CYCLE :

Sleep is an important part of everyone's life . If we didn't have a proper sleep schedule then it would have a negative impact on an individual mentally and physically both and when it comes to students it had generally been noticed that they had disturbed sleep cycle and thus we had provided the feature which will track their sleep cycle. This app will show you your sleep score as per week through taking your input and they are 1. How was your sleep and 2. how many hours you slept today , the sleep score is out of 100 . Here we had provided two more sections, one is music for better sleep .In this section we had provided calm music for better sleep . Another section is sleep hygiene where we have provided information regarding sleep hygiene , symptoms for poor sleep and tips to improve poor sleep . This section also includes videos on sleep hygiene through which we can explain sleep hygiene in detail to kids.

DEPRESSION DETECTION:

The major issue among students, especially teenagers is that they undergo a lot of stress, when puberty hits they undergo lots of changes and are more prone to depression. According to WHO, 1 out of every 4 teenagers is suffering from depression that can range from mild to very severe. Therefore, it is essential to detect depression at an early stage. This feature is achieved through chatbot and aims at detecting depression among students using a PHQ-9 questionnaire. This questionnaire is used worldwide and is a verified depression detection module. Based on the score of this questionnaire, if depression is detected, that student is recommended counsellors. Options in this questionnaire consist of weightage from 0 to 3 and based on this, the depression score is calculated.

CALORIE COUNTER:

From 4th class onwards, this feature is provided to students. The objective of this feature is to allow students to track their calorie intake per day in order to stay healthy. While registration, height, weight, age and level of physical activities of the student is taken as input and stored in firebase. Using these inputs, BMI and calorie intake per day is calculated. According to their BMI

score, students are classified as underweight (BMI<18), healthy (18<=BMI<=22) and overweight (BMI>22) and diet and exercise are recommended to the student based on this classification. Calorie Intake per day is calculated using Harris-Benedict equation based on above personal details. To keep track of calorie intake, a sample api, nutritionix api, has been added, so that students can know calories of each food that they consumed.

NOWCAST:

Appreciation acts as a motivation, and to motivate students to do self care, this feature has been added. In this nowcast section, students can post their hobbies, self care activities etc and receive appreciation in the form of likes. These posts will be stored in firebase, and retrieved via recycler view.

RELAXING ACTIVITIES:

Stress can seem unavoidable for students , but relaxation can play a key role in improving them in study and changing their life. Every student has a different mode of relaxation. Different age , different class ,different problems and so are activities through which they can relax . here we had provide different activities classified in 5 sub part and they are :
Firstly for the kids , then 3rd to 5th class, then 6 th to 8th ,then 9th to 12th and finally college students.
For kids we had provided 1. Drawing patterns 2. puzzles 3. Animated stories 4.tangrams and many more and we know that kids need a break for some fun .Thus we have provided kids with a productive way to relax . And above activities provide them knowledge in an interesting way.

For 3rd to 5th class and for 6 th to 8th the activities are same but the data and content is different so we had provided bubble wrap , puzzles, scavenger hunt ,exploring their hobbies (because generally at this age they want to explore different hobbies.),writing journals(generally during this age they want to share their feelings and problems but didn't have any idea so we had provided an idea of journal writing.) and playing outdoor games (for their physical health).

for 9th to 12th and college students . They generally have the same problem for their stress. We know that this time is dedicated for their preparation so we had provided following activities : riddles, doing exercises,bubble wrap, writing journal (for sharing their feelings and problems) , quizzes based on popular shows and movies and 30days challenge that are present on pinterest (currently most of the students are using this as their relaxment activities.)

SPECIAL NEED (DIVYANG) SECTION :

We had provided a feature for special needs students in our app.we had majorly concentrated on hearing and listening impaired students. In this section we had provided inspirational and motivational quotes to motivate them and make them confident and happy about themself . This section will also include some videos of activities and e-comics present which have been explained in sign language . The content is taken from ncert official youtube channel name under priya the accessibility warrior. There is another section where we will include inspirational stories of students with special needs. This section will provide them confidence for moving forward and living life like normal students around them.

LET'S HAVE A CONVERSATION/THERAPISTS

For students that are facing mental health issues like anxiety, depression etc. this app has a section called "LET'S HAVE A CONVERSATION" where students can talk to therapists. We did a survey, where responses were recorded from students ranging from 5th standard to university level, and more than 90% of students were more comfortable with online therapy sessions as compared to offline. In this app, for now, the students are given information about NGOs with therapists that work to help people free of cost and provide free counselling and therapy sessions.

The contact of these NGOs is taken from https://www.thelivelovelaughfoundation.org/find-help/helplines .

Technology stack:

FRONTEND

Scripting language :   XML

Development Tool :   Android Studio

BACKEND

Programming Languages :   Java, Kotlin

Database :   Firebase

Framework :   Flask

Machine Learning :   Python Libraries Like sklearn, numpy, pandas, nltk, vaderSentiment

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DEVICE TYPES : Smartphones

  APP INTEGRATION(social platform) : Whatsapp

AI/ML algorithm used

Stochastic gradient descent is an optimization algorithm often used in machine learning applications to find the model parameters that correspond to the best fit between predicted and actual outputs.

The word '*stochastic*' means a system or process linked with a random probability. Hence, in Stochastic Gradient Descent,

A few samples are selected randomly instead of the whole data set for each iteration.

Suppose, you have a million samples in your dataset, so if you use a typical Gradient Descent optimization technique, you will have to use all of the one million samples for completing one iteration while performing the Gradient Descent, and it has to be done for every iteration until the minima are reached. Hence, it becomes computationally very expensive to perform.

This problem is solved by Stochastic Gradient Descent. In SGD, it uses only a single sample, i.e., a batch size of one, to perform each iteration. The sample is randomly shuffled and selected for performing the iteration

vaderSentiment:*VADER   (Valence   Aware   Dictionary   and   sEntiment Reasoner)*

It is a lexical database and rule-based sentiment analysis tool that is optimised for social media sentiments. It makes use of a variety of techniques.

A sentiment lexicon is a collection of lexical features (e.g., words) that are classified as positive or negative depending on their sentiment polarity. It not only exhibits the Positivity and Negativity scores, but also the degree to which a sentiment is positive or negative.

- ○ It's good at analysing large datasets.

Our recommendation system uses a cosine similarity function to recommend the activities to be performed by the student.The cosine similarity measures the similarity between vector lists by calculating the cosine angle between the two vector lists. If you consider the cosine function, its value at 0 degrees is 1 and -1 at 180 degrees. This means for two overlapping vectors, the value of cosine will be maximum and minimum for two precisely opposite vectors.

Recommendation System

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ForYou is a self care mobile application for school and college going students. Main aim of the app is to promote self-care among students and to enhance the overall well-being including mental, physical and social health. This self-care application focuses on the school going students and university students to promote self care among them and motivate them to improve their social, physical and mental activities.

This app is divided into 4 levels : The application provides following features:

- ★ **FOUNDATION LEVEL**
  - ○ Fight your fears
  - ○ Good Touch & Bad Touch
  - ○ Bully Detection
  - ○ Gratitude Section

2. **PREPARATORY LEVEL**

  - ★ Good Touch & Bad Touch
  - ★ <u>Menstrual Awareness</u>
  - ★ <u>Personalised Todo list</u>
  - ★ Gratitude Section

3. **MIDDLE LEVEL**

  - ★ <u>Depression Detection</u>
  - ★ <u>Menstrual Tracker</u>
  - ★ <u>Recommended activities</u>
  - ★ <u>Sleep tracker</u>

4. **MIDDLE LEVEL**

  - ★ <u>Add Personal To-Do List</u>
  - ★ Depression Detection
  - ★ Menstrual Tracker
  - ★ Recommended activities
  - ★ Sleep tracker