

UROP

Happiness Project

Submitted By:

M. Varsha (AP18110010350)

P. Moushmi Ramya (AP18110010360)

R. Jahnavi (AP18110010353)

M. Nikitha (AP18110010393)

CSE - F

Semester-6

Batch: 2018-2022

SRM University - AP

Contents

Chapter

1.	Introduction	3
2.	Literature Survey	4
	2.1 Children Happiness	4
	2.2 C-Smile	11
3.	System Analysis	14
	3.1 Existing Method	14
	3.2 Proposed Method	14
4.	System Requirements	15
	4.1 Hardware requirements	15
	4.2 Software requirements	15
5.	Problem Statement	16
6.	Proposed Methodology	17
7.	Performance Evaluation	18
8.	Conclusion	38
9.	Bibliography	39

Chapter 1

Introduction

This website Smile Aid is designed in the view of students who need support psychologically and in academics. Here we work on two broad aspects, one is to find out the misconceptions of students through online assessment and give them the right feedback to improve themselves and the other is for the emotional well-being of the students. This system is enabled with the structured questionnaire, which helps identify the potential candidates/students, who are undergoing psychological pressure. This way, they could be identified at early stages.

Assessing emotional well-being of every school-going child and adolescent is important in order to offer timely support and intervention for emotional and behavioural disturbances. If not checked, these emotional difficulties may impede academic, personal and social growth, resulting in a lifetime of difficulties for such individuals. Only when a child is emotionally secure and content, he/she can give their best every challenge they face. Schools should create a progressive learning environment where academic achievement is related not only to successful learning strategies, but also to good mental wellbeing.

Combined with adequate resources, recognition of these challenges will ensure that schools help eliminate obstacles to student learning and build the right framework for academic success for all students. Therefore, here this project aims to explore the meaning, situation, and parties associated with happiness in children and to deliver the best tool to detect the state of the children's mental health regarding whether they are happy or sad and according to it the tool provides the needful.

Here, C-SMILE being the planning and Development of Classification of Students Misconceptions in Individualized Learning Environment (C-SMILE) System that has accommodations for student's misconceptions so as to enhance student's conceptual understanding and at last learning outcome individualized learning. Relying upon the student's misconceptions we have a tendency to facilitate them to travel through the clear conceptual learning supported by the amount level of questions during this system which incorporates misconception primarily based feedback.

This assessment plays an important role in the educational system. The main purpose of this assessment is to provide meaningful feedback to teachers and students where students can monitor their learning progress using the feedback through this system. It also increases the learner's confidence and motivation to learn and grow. Using technology in the assessment helps the process to collect and analyze the data in a shorter period of time with more accuracy. From this, we made sure to provide a system which provides misconceptions based feedback which helps for better individualized conceptual learning.

Chapter 2

Literature Review

2.1 Children Happiness

López-Pérez, et. al [1] have assessed parent-child agreement in the perception of children's general happiness or well-being in typically developing children that are 10 and 11 year old's and adolescents, 15- and 16 year old's. Also reviewed the studies in positive psychology, including happiness, well-being, and life satisfaction. This mainly tends to focus on broad social competences. The concept of health in children contains aspects of social and mental well-being with friends and parents and not just the absence of disease.

The results of the questionnaire about parents' perceptions of children's and adolescent's general happiness did not correlate. Parents of 10-11 year old's considerably overestimated children's happiness supporting the positivity bias effect. But, parents of 15-16 year old's showed reverse patterns by underestimating adolescents' happiness. The results or findings have theoretical and practical implications for research into parent-child relationships. After 6 months, parents' self-reported happiness significantly correlated with their children's and adolescents' happiness. Hence, we can say that these results suggest a potential parents' egocentric bias when estimating their children's happiness.

An overview of the theoretical basis of emotional competence is provided, also as a search of the relevance of emotional competence for positive youth development. Many assessments of emotional competence are performed, school-based methods of enhancing emotional competence are offered. But as we observe that there is an emerging body of evidence that supports employing specific techniques that are more amenable to school-based practice which can also promote happiness and life satisfaction in children and adolescents. As always we need further research on the development of child and adolescent emotional competence in the context of school-related behavior.

Mark D.Holder , et.al [2] assessed the relation between happiness and temperament in the children aged 9-12 years. Children were asked to rate their own temperament using the EAS(Emotionality, Activity, and Sociability Temperament Survey) and the Piers–Harris Self Concept Scale for Children Second Edition further rating their happiness. The happiness was rated based on a single measure item which is the Oxford Happiness Questionnaire Short Form, and the Subjective Happiness Scale.

Parents were also asked to rate their kids' temperament. It was seen that there was 9% - 29% variance accounted for the temperament in children's happiness depending on the measures. Children who were more active, bold, confident and communal seemed to be happier. The results were similar to the relation between personality and happiness in the adults. Emotionality has a negative effect on happiness whereas amiability has a positive one. The higher the temperament trait activity, higher the happiness in the children.

Thoilliez [3] has studied that the role of the emotions in learning has long been acknowledged however is usually unmarked. The interest in children's well-being has been steadily increasing across all the areas of the planet however, the importance there in relation to learning and development is undisputed. Complutense University of Madrid has a group of researchers on Pedagogy of children values, who have been developing the methodological approach over 10 years based on pedagogical theory main subject, we need to know how young children subjectively experience well being. Here we consider the impact of one particular emotion, happiness, has on learning and the school curriculum.

This requires the adoption of a constructivist, child-centered approach to the conceptualization of wellbeing in early childhood research to promote effective program provision so that it will not affect the child later. Happiness also makes us more disposed to engage in creative endeavor, which is itself another source of fulfilment. Some psychologists argue that rather than being mounted, happiness, optimism and other positive traits can be learnt through education.

As our interest is in education, our aims were to learn what children say, believe, and imagine, as well as to make recommendations for educational practice. Everything takes place only between the researcher and the child. This also fails to recognize that children typically have parents who bear the primary legal responsibility for them for their safety and their social and emotional well-being. Nevertheless parental participation receives limited consideration in the way of our approach. We offer evidence from our own professionals who have a good experience in teaching to corroborate these claims about the relevance of school children happiness.

Guido Van Hal,et.al [4] proposed a questionnaire for monitoring important parameters in school children. He stated that it's the responsibility of schools and parents also when it comes to the happiness of school children. Although happiness seems to be a complex concept since it is associated with various factors like mental health,physical health and well being.

Students were asked to rate how happy they are on a 10 point scale(0 = very unhappy, 10 = very happy)'.

Other aspects like their behaviour,health,leisure time and social network were also addressed. Based on the regression models and a regression tree calculation students were classified.A total of 873 students participated in this study, where 422 are females and the mean age is 10 years. Based on the study the mean happiness score was 8.0, as was the median.

He concluded that the primary school children are happy. However the schools have to take action to put a stop and discourage bullying. Also the parents have responsibility for their kids happiness.

Tan, et.al [5] have proposed a linear regression model to calculate happiness of people in their well-being and other satisfactory requirements. Subjective well-being refers to how people evaluate their lives and includes variables such as life satisfaction and education. Children happiness is also a concept of fundamental importance that it has preoccupied philosophers and religions for silver ages. Intentionally, it is very considerable to find appropriate variables to predict happiness and set up a suitable model to predict happiness. In contrast, happiness is

developed as an emotional state generated by positive and negative events and experiences in the life of an individual.

Due to the correlation between various explanatory variables, the traditional linear regression model cannot accurately estimate the coefficients, making the predictions risky. Ridge regression, LASSO regression, and elastic net based on machine learning are applied to our research goals. By comparing the relevant statistics with the data, the best prediction model is based on the elastic net model.

Though there is some empirical correlation, in variable degrees, between happiness and life satisfaction, they however deviate. Education and happiness are related, even if the same income is controlled, more education is happier. Stated that, relative things matter a great deal, that is people are more concerned about the views of people who are closely connected with themselves.

Michelle Lambert, et.al [6] proposed a method to measure the happiness in the secondary school students. This was measured using the WHO wellbeing index. To check the validity of this measure, the Reynolds Adolescent Depression scale SF and the general life satisfaction item was taken. The survey included the questions which were based on the factors like school and family situations and peer pressure. It was also included regarding the belonging to a cultural group and physical exercise. Also for the teen the few questions were also based on the consumption of alcohol , sexual violence abuse, ethnic discrimination and long term health effects.

The data retrieved from the students were analysed based on the pearson's correlation coefficient and regression.Happiness was negatively associated with yelling and hitting of children and adults at home, discrimination, sexual abuse, frequent alcohol use and having a long term health condition. Whereas happiness was positively associated with good connections with family, friends and school, regular exercise and meals with family.The study demonstrates that caring relationships with parents, schools and community is very important for the happiness among adolescents. Future strategies to enhance adolescent wellbeing must take an ecological approach; acknowledging that family, school and community contexts are important for happiness among children.

Badri, et .al [7] stated that there are three main theories of happiness:

- 1) Set-point theory: that views happiness as a stable attitude towards life that is biologically encoded in humans. It suggests that regardless of what we do, we end up staying within a particular, stable level of satisfaction.
- 2) Comparison theory: Expresses happiness as an endless judgment method involving the comparison of our life as a result of it relates to a perceived "ideal life". In this sense, happiness is especially the merchandise of our mental evaluation rather than the circumstances during which we live.
- 3) Affect theory : It defines happiness as a sum of the pains and experienced pleasures.

All these provide different results for happiness. The framework also draws on elements of positive psychology, during which the core theoretical concept of well-being is positive emotion, engagement, relationships, meaning and accomplishment. Structural equation modeling and multivariate analysis of variance (MANOVA) were employed to look at the

association between latent constructs. It is important to know that understanding the connection of happiness in schools to contexts is vital. MANOVA analysis is used to compare the differences between the different categories of students from the collected data.

School psychologists can play a main role in enhancing the emotional competence of children. A crucial criterion for happy schools is positive teacher attitudes and attributes like kindness, enthusiasm and fairness, and therefore the role in serving as inspiring, creative and happy role models for learners. We will also demonstrate how school-related variables alongside family oriented variables interact to extend the happiness of school children, and supply timely implications regarding how to increase the happiness of these children.

In 2006, Abdel-Khalek ,et.al [8] described that happiness is measured by one item. The accuracy in measuring happiness by a single item was studied. The accuracy base on a 11-point(0-10) scale was studied. The temporal stability had been 0.86. Only a single item had correlation with the Oxford Happiness Inventory (OHI) and also the Satisfaction with Life Scale.

It had good concurrent validity and positive effect in determining the happiness of the children. The single item had an honest validity because it had been positively correlated with optimism, hope, self-esteem, and self-ratings of both physical and psychological state . Furthermore, the divergent validity of the single item has been adequately demonstrated through its significant and negative correlations with anxiety, negativity and insomnia.

Hence it was concluded that measuring happiness by a single item is reasonable, reliable and applicable in the diverse community with children from different cultural backgrounds.

Anand, et.al [9] have assessed that Children's happiness has been studied strictly in recent years. A child's happiness depends upon individual characteristics, lifestyle characteristics, health standing, setting they sleep in, family reference to the kid emotional level aspects, academic performance of the child. These factors are directly or indirectly associated with the emotional standing of the kid.

However, very little is thought regarding what makes children happy, or regarding the temperament forms of those who are a unit happy, apart from a recent study by Holder and Coleman (2008) who explored demographic and temperament variables related to children's happiness in British Columbia, Canada. means that happiness in young youngsters could also be of a special order from those in adolescents and adults as a result of youngsters don't have psychological feature maturity and have not veteran a number of the life circumstances that influence the happiness of adults. Consequently, a deeper appreciation of the factors related to childhood happiness and information is required.

Alavinia et al. [10] had estimated the relative contribution of factors such as lifestyle and individual characteristics, health complications, and work-related physical demand on construction labourer's workability. These authors organized a survey with 19,507 Dutch construction workers. The workers voluntarily took part in a medical check-up in 2005. The medical check included a questionnaire and a physical examination. The questionnaire included data such as smoking and drinking habits, activity level during leisure time, age, height, weight, type of the job, and the worker's perceived job demands and job control. Using this data, these

researchers measured the workability index. They examined the influence of physical and psychosocial work-related factors, individual characteristics, lifestyle factors, and few objective health indicators on the workability index. Specifically, the authors utilized multiple linear regression and logistic regression models to approximate each factor's effect on workers' workability. And they found that work-related factors explained 22% of the variability in the workability index. Age, leisure-time activity, lung blockage, and cardiovascular risk contributed approximately 10% of the workability variability.

The above-stated factors are not the only factors affecting the productivity of the worker. The stress level, job satisfaction, and experience can also affect worker productivity significantly. George Halkos et al. [11] have studied the impact of stress and job satisfaction on worker productivity. In his study, a sample of 425 individuals was examined. The result included 4 logistic regression models quantifying the relationship between work productivity and the various factors. The author found that both the stress and job satisfaction factors were statistically significant with P-values equal to 0.000 and 0.006. He also found that factors such as age, education level, experience, distance from work, employment sector, and employee positions significantly affect worker productivity.

The facial expressions and eye gaze can also assess emotions. Our facial expressions are an essential element in social interaction and communication. Broch-Due et al. [12] demonstrated that remitted bipolar patients showed abnormal facial expressions in response to unpleasant pictures and more vital expressions to neutral images. These authors concluded that abnormal eye-movement and facial displays could better measure emotional reactivity in bipolar patients than the typically used behavioural measures. Furthermore, research studies have proven the vital role that happiness plays in elevating employee's and office workers' performance and productivity levels.

Holder, et.al[13] have assessed Children's happiness is so extraordinarily desired by adults from nations that unite wealthier, happier and a great deal of individualism. A stronger target analysis investigation: happiness and life satisfaction in kids is secure as a result of these variables square measure by trial and error joined to a decent kind of edges and benefits, a minimum of in adults and adolescents.

Positive psychological science includes the activity and sweetening of positive well-being as well as happiness. From the beginning achieving happiness has been recognized by philosophers and intellectuals as an extremely prized goal. A quote from the philosopher demonstrates this: "Everyone needs continuous and real happiness" (Spinoza 1677/1985). A high price assigned to happiness is presently reflected in several populations. As an example, 9,000 students were sampled from 47 nations and given a listing of twenty values as well as wealth, love, and health (Kim-Prieto et al. 2005). The scholars know happiness because the most vital value with solely 3% coverage that they failed to price it in any respect.

Roessler, et al[14] have proposed that the method folks attend to bound objects or visual stimuli is very influenced by the emotions and attitudes they're experiencing at that time. Analysis has systematically shown that individuals' square measure is generally higher at recognizing faces

of individuals from their own race, than they're at recognizing faces of individuals from totally different races.

Here, we have a tendency to use the Faces Scale to estimate happiness in youngsters. the size has seven faces to settle on from and therefore the point that represents a neutral face (i.e., neither happy nor sad), is that the fourth face. In our analysis, nine-tenths of children rate themselves as being happier than the point and their oldsters and academics agree (Holder and Coleman 2008). These findings measure per studies of adults' happiness.

To make folks responsive to their emotions and increase their well-being we tend to use a way said as "virtual mirroring". relating a way that folks are shown metrics of their own communication behavior whereas they are told which communication behavior is fascinating. In earlier work doing virtual mirroring by analysing e-mail communication, it has been shown that individuals will modify their behavior to be loads of cooperative, productive, and innovative. Thus, through virtual mirroring organizations can enhance their performance and outcome by the terms of machine learning. Thus, usually one in each of the tactics of predicting happiness by pattern machine learning.

Jaques, et.al[15] have proposed the scale based on the basic analysis of research lately, we chose to use the Happiness scale as our ground-truth measure; by using a slider from "Sad" (a value of 0) to "Happy" (a value of 100). We frame the problem as binary classification; days on which a participant reported a Happiness score in the top 30% of all Happiness scores are labelled as a positive day, and days in which participants reported a Happiness score in the bottom 30% are labelled as a negative day. We do not include the middle 40% of scores. In this way it helps to know the emotion of the participant on days basis whether they are happy or sad. So, by this process we can estimate the emotion of the participant

Campbell et al. [16] have described that Subjective well-being, or what we called happiness, refers to how people evaluate their lives and includes variables such as life satisfaction and education. Since the 1980s, there has been a tremendous increase in well-being research, with most researchers concur that feelings of happiness comprise a cognitive-evaluative factor (life satisfaction) and an affective factor (happy). More specifically, happiness is more of a cognitive rating that is dependent on social comparisons with other major reference groups and the individual's desires, expectations, and hopes.

In contrast, Tsou et al. [17] has described that happiness is developed as an emotional state generated by positive and negative events and experiences in an individual's life.

Occurring recent findings from such statistical happiness research include the following:

1. For individuals, money can buy some levels of happiness to some extent. Generally, for the typical individual, a doubling of salary makes a lot less difference than life events like a good family relationship.

2. The age trend of happiness is U-shaped. In existing studies, women are happier than men. The two most significant negative factors in life are unemployment and divorce. Education and happiness are related; even if the same income is controlled, more education is happier.
3. In every industrialized country, the happiness equation structure has the same general format. In other words, perhaps by adding data from developing countries, the design will change.
4. There is adaptation. Whether it is a good thing or a bad thing in life, when people get used to it, the influence will gradually weaken.
5. Relative things matter a great deal. For example, people are more concerned about people's views who are closely connected with themselves.

Ekman et al. [18] have described that the narrative text is often especially prone to having emotional content. He had taken the literary genre of fairy tales, emotions such as happiness, anger, and related cognitive states like love or hate, which become integral parts of the story plot and are of particular importance. Moreover, the storyteller reading the story interprets emotions to orally convey the story to make the story realistic and catches the listeners' attention. In a speech, speakers effectively express feelings by modifying the metrics, including pitch, intensity, and durational cues in the speech signal. Thus, making text-to-speech synthesis sound as natural and engaging as possible is essential to convey the text's emotional stance. However, this implies first having identified the appropriate emotional meaning of the corresponding text passage. Cahn et al. [19] have explained that an emotional text-to-speech synthesis application has to solve two fundamental problems. First, what emotion most appropriately describes a particular text passage. Second, given a text passage and a specified emotional mark-up, render the prosodic contour to convey the emotional content. The text-based emotion prediction task addresses the first of these two problems.

Martinez et al. [20] have explained that there have been two leading models in cognitive science and neuroscience describing how humans perceive and classify facial expressions of emotion. They are the continuous model and the categorical model. The continuous model explains how the expressions of emotion can be seen at different intensities. Whereas the categorical model consists of C classifiers, each tuned to a specific emotion category. It explains why the images in a morphing sequence between a happy and a surprise face are perceived as either happy or surprised but not in between. In contrast, the continuous model has more difficulty in explaining this latter finding. The categorical model is not so good when explaining how expressions are recognized at different intensities or modes. Most importantly, both models have problems describing how one can realize combinations of emotion categories such as happily surprised, angrily surprise, and surprise. To resolve these issues, he had worked on a model that justifies the results described in cognitive science and the neuroscience literature. It consists of C distinct continuous spaces. Multiple emotion categories can be acknowledged by linearly combining the C face spaces. The dimensions of these C face spaces are shown to be primarily configured. According to this model, the primary task for detecting facial expressions of emotion is accurate, precise detection of facial features rather than just recognition. We also provide an

overview of the literature justifying the model and show how the resulting model can be employed to build algorithms to recognize emotion's facial expression. And he proposed research directions in machine learning and computer vision researchers to keep pushing the state-of-the-art in these areas. And also how the model can aid in studies of human perception, social interactions, and disorders.

2.2 C-Smile

K. Nyiri et al. [21] have described E-learning as using internet technology to create, manage, make available, secure, select, and use educational content to store information; and monitor those who learn and understand, and make communication and cooperation possible. As students complete their course, they were requested to access their regular online course materials from a distance using their existing mobile devices. Then the students were asked to provide feedback on their experience using mobile devices anytime and anywhere. The course content used for delivery on mobile devices was in XML format using the IMS Learning Design specification. This format allows the content to be separated from the presentation and identified specific activities and learning objects within each learning unit. Also, using this, the content can be displayed in many different formats, in a wide range of layouts, and on various devices.

Alex Pongpech et al. [22] illustrated how people could utilize their proposed representation for personalized learning functionality, such as course recommendation functionality. Although they used each learner's background to recommend suitable personalized goals, they also have observed that in several instances. The minimum number of courses left uncompleted might not be enough to provide a unique solution for each learner. Furthermore, given that there can be more than one possible recommendation for each learner. This mechanism allows learners to specify personal criteria to find a possible unique solution that would be more superior.

Owen Conlan et al. [23] have described the principles behind the combination of personalized content and services that may be used to create activity-based personalized distance learning offerings. We may realize a service-oriented approach to customized learning activities by combining the methodologies seen in service composition and personalized learning. They have shown the multi-model, metadata-driven approach principles as appropriate guidelines for achieving successful personalization, engaging learners in activity-based distance learning opportunities.

Soller et al. [24] have described that the underlying principle behind the social constructivism view of learning is the knowledge constructed by the learner's active interaction with the environment. He claimed that effective collaboration had proven itself a successful and influential learning method. Collaborative learning activities involve students in challenging tasks or questions and enable them to become immediate practitioners and develop higher-order reasoning and problem-solving skills. In this context, collaborative learning is increasing, and the advent of communication technologies has made computer-mediated collaboration possible.

Shepard et al. [25] have described that along with the learning process; assessment is considered an essential component of an educational setting. Assessment plays a vital role in helping learners learn with learning and instruction instead of being postponed at the end of the instruction. Moreover, the assessment allows students to identify what they have already learned, observe their learning progress, and decide how to direct their learning process further. As knowledge construction necessitates higher-order thinking, new forms of assessment are required. Assessment methods such as self-peer and collaborative-assessment have been introduced in recent years to enhance/promote learning and integrate assessment with instruction.

Gharpure & Mudur et al. [26] proposed a research that focuses on knowledge representation and instructional aspects relevant to learner-centric computer-based learning environments. In a learner-centric environment, to optimize the efficacy of the learning process, the system should adapt to learner characteristics. They proposed the framework of multidimensional learning space, with learning operators that enable adapting concerning a category of learners. Learning varieties, learning environment, and learner knowledge are the dimensions of the framework. A pedagogical approach is applied to every value along the learning variety dimension. The category of a learner is not static. It will change dynamically depending on the learner's measured capability, current knowledge base, and learning goal. A system with this framework will first create an individualized microlearning space for a learner of a particular category and present a non-linear path and instruction content appropriate for that category.

Bhagat et al.[27] proposed a design associated development of identification of students' misconceptions in an personalized learning setting (iSMILE) system that features accommodations for students' misconceptions so as to enhance student's abstract understanding and at last learning outcome.

Based on this, A formative assessment system is developed to spot students' misconceptions. This method uses two-level multiple-choice queries for assessment purposes. Open supply ICT tools (like MySQL, Apache, etc.) area unit to style our system. We have developed the iSMILE system, its parts and design, operating method, and application. The iSMILE system consists of an information unit, a server unit, and an interface. iSMILE's design is predicated on the Model read Controller (MVC) style. It takes for a user to take a few questions in this system so that we can get the analysis and help the student accordingly. There is even a detailed process of working of the iSMILE system in this. This feature of iSMILE distinguishes itself from alternative accessible web-based formative assessment systems. Our system uses the ASCII text file ICT tools (like MySQL, Apache); so, it's freed from value and may be accessed from anyplace and at any time.

Weisgerber, R. A. et al.[28] have described study could be a correct analysis of chosen factors underlying the method of individualised learning. The associate analysis is organized locally and moves from theoretical issues toward an analysis of vital instructional parts. The analysis comes back from a cross section of specialists representing the areas of learning theory, individual variations, measure and analysis, instructional objectives, teacher roles, learning activities, facilities, technology, and pc systems.

It's supported the assumptions regarding the necessity for individualised learning, mental skills as a doable basis for individualisation, the impact of individual variations on reading, the measure and accommodation of individual variations, instructional objectives, evaluation, the ever-changing role of the teacher, individualised and interactive learning activities, the academic surroundings, and computer-assisted instruction.

Gallagher, P. A. et al.[29] describes the results of associate analysis of the personal Learning Intervention (ILI), a mentoring program for infancy educators that's engineered upon adult autonomous learning experiences and therefore the cooperative support of others. Here, sixteen mentor and sixteen lecturer area units elect for the participation within the study wherever every teacher and mentor were arbitrarily appointed to either the treatment or control. During this there is area unit 3 elements enclosed for the mentoring by mentors. After this, proof is bestowed for the impact of the mentoring program on the improved kid organic process progress similarly as on the skilled growth of the Mentors and lecturers. This helps within the individualised learning and personal analysis of a child.

Chapter 3

System Analysis

3.1 Existing Method

Previously , the students were given an opportunity to speak to the counsellors and psychologists when they had certain problems. In recent years due to increase in certain aspects like peer pressure,lack of proper parental guidance etc the students facing emotional imbalances are rapidly increasing. To cope up with the growing figures new systems should be developed that can help identify the children at a scale in the early stages.

Students were accessed based on a single level questionnaire in their academics till the last years. In this type of assessment there is a drawback of students guessing the answers and also they might not get a thorough concept . The identification of students' misconceptions was a time consuming process.

3.2 Proposed Method

Smile Aid, holds two developed designs namely C-SMILE and Children Happiness. Children Happiness mainly focuses on the children between the ages 12-16 years in schools. Here, to analyze the child's emotional well-being, machine learning is used to identify psychological problems at early stages.A questionnaire is prepared that helps to identify student's potential with psychological problems.

In the C-SMILE design, the system is assessed to assist the students with their misconceptions and find out personalized and conceptual learning that helps the students and academics urge their substantive feedback and learn from it. We tend to design and develop the system in answering it by keeping with the amount of the leveled questions asked in it then relinquishing feedback to the user. For every instructional objective, multiple-choice questions are prepared concerning the identified options. Thus, based on the answers provided by the student to the first-level questions and second-level questions, feedback is given to improve the student's learning skills.

Chapter 4

System Requirements

Hardware Requirements:

The user interface for the system shall be compatible with any type of web browser such as Mozilla Firefox, Google Chrome, and Internet Explorer. This system requires 2GB space. System should sync frequently to the backup server in order to avoid data loss during failure, so it can be recovered.

Software Requirements:

Web Server:

OS (Windows)

Database Server:

- XAMPP
- MySQL

Development End:

- HTML
- CSS
- PHP

Chapter 5

Problem Statement

We already know from tons of studies that due to misconception and psychological disturbance people experience a lot of negative outcomes. Before misconceptions can be corrected, they need to be identified. Here we work on two broad aspects, one is to find out the misconceptions of students through online assessment and give them a right feedback to improve themselves and the other is for the school children as the emotional well-being of the students is more important, we have an online system that is enabled with the structured questionnaire, which helps identify the potential candidates/ students, who are undergoing psychological pressure. This way, they could be identified at early stages.

Children's happiness mainly focuses on the children at the age between 12-16 years in schools. Here, to analyse the emotional well-being of the child we use machine learning to identify psychological problems at early stages. Before including machine learning in the tool first we prepare a questionnaire which helps to identify the potential of the students with psychology problems.

Based on the students who need help immediately we pick them and we do a face to face initial screening of students with the help of psychologists after briefing the process to the students and create a profile for each student. Subsequently, school teachers who received training in the process update the behavioural responses of each student on the online portal. The main purpose of this children happiness assessment is to help the children to have good mental health by doing the needful through our system.

In the C-SMILE section, the system is assessed to assist the students with their misconceptions and to find out the personalized and conceptual learning that helps the students and academics to urge their substantive feedback and learn from it. In knowing the working of the system, first we have to go through the system and give respective log in and have to fill the needful. During this we have a tendency to design and develop the system in answering it by keeping with the amount of the leveled questions asked in it then to relinquish feedback to the user.

For every instructional objective, multiple choice questions are prepared with respect to the identified misconceptions. Thus, based on the answers provided by the student to the first-level questions and second level questions, feedback is given to improve the learning skills of the student.

Chapter 6

Proposed Method

This website is addressed as Smile Aid, where the homepage holds two developed designs as C-SMILE and Children Happiness. By scrolling down, there is a detailed explanation of the website holdings and contact details.

At first, checking into the C-SMILE design, you may enter the admin page or login page according to the type of the user. On the admin page, we first enter the username and password of the admin. The dashboard contains several categories, such as home, students, questions, settings, and log out. Based on this, the admin can access and update the student's list. The level of questions to be asked can be updated.

Students can login using their username and password provided by the admin. There are two levels of multiple-choice questions in the test. In the first question, based on the option chosen, the second-level question is displayed. On submission they receive feedback based on their answers. This feedback helps the student to understand their conceptual and individualized learning. The responses of the students are stored in the database. The student responses are further classified using K-means clustering algorithm. The classified students can be identified based on their misconceptions.

The Children Happiness system is enabled with the structured questionnaire, which helps identify the potential candidates/ students, who are undergoing psychological pressure. Schools can register and add the list of their students after login. Each student's responses should be filled in the form given.

Based on the responses of the students, the student responses are further classified using K-means clustering algorithm. Students are classified into three groups A, B, and C. Where Group-A indicates that children need immediate attention. Group-B indicates that children are moderately fine, and Group-C indicates that the children are happy. According to this analysis, the child gets help from psychologists to improve their mental health.

Chapter 7

Performance Evaluation

Smile Aid Homepage:

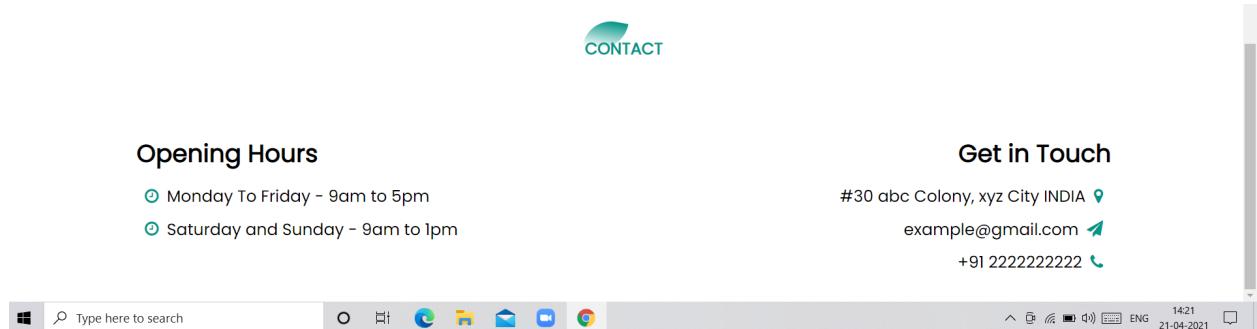


About:

Experienced Staff

Smile is a reflection of happiness. We already know from tons of studies that due to misconception and psychological disturbance people experience a lot of negative outcomes. Before misconceptions can be corrected, they need to be identified. Here we work on two broad aspects, one is to find out the misconceptions of students through online assessment and give them a right feedback to improve themselves and the other is for the school children as the emotional well-being of the students is more important, we have an online system that is enabled with the structured questionnaire, which helps identify the potential candidates/ students, who are undergoing psychological pressure. This way, they could be identified at early stages.

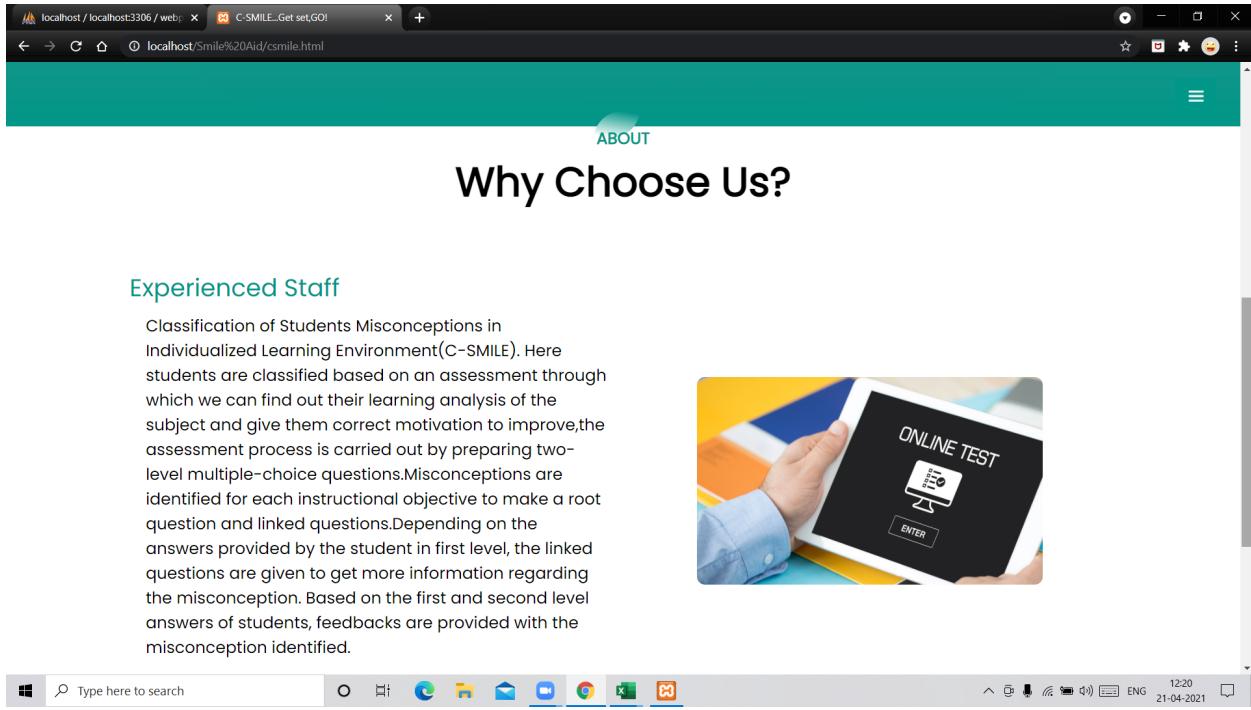
Contact Details:



C-Smile Home Page:



About:



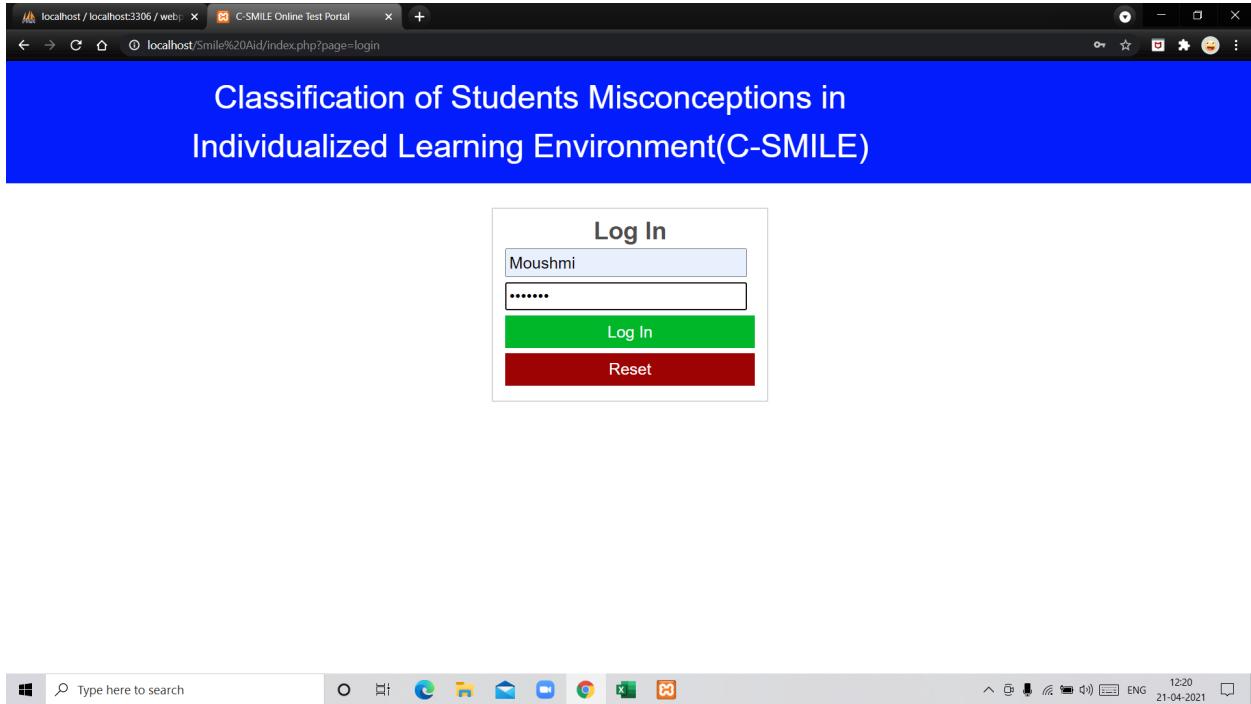
ABOUT

Why Choose Us?

Experienced Staff

Classification of Students Misconceptions in Individualized Learning Environment(C-SMILE). Here students are classified based on an assessment through which we can find out their learning analysis of the subject and give them correct motivation to improve, the assessment process is carried out by preparing two-level multiple-choice questions. Misconceptions are identified for each instructional objective to make a root question and linked questions. Depending on the answers provided by the student in first level, the linked questions are given to get more information regarding the misconception. Based on the first and second level answers of students, feedbacks are provided with the misconception identified.

Login:



Classification of Students Misconceptions in Individualized Learning Environment(C-SMILE)

Log In

Moushmi

Log In
Reset

Welcome page for the Test:

Login Successful.

Hello **Moushmi**. Get ready for your test.

Here are some of the rules and regulations of this app.

1. This test is automated and you won't be able to return to previous question.
2. Once you successfully login, you can't log back in unless the permission of system administrator.

Take a Test **Quit**



1st-level question:

User: **Moushmi Ramya**

Which of the following is the characteristic of T Flip Flop?

(Q_{n+1} denotes the next state)

a)

i/p	Q_{n+1}
0	1
1	0

b)

i/p	Q_{n+1}
0	Q_n
1	$\overline{Q_{n+1}}$

c)

i/p	Q_{n+1}
0	0
1	1

d)

i/p	Q_{n+1}
0	$\overline{Q_{n+1}}$
1	Q_n

Submit **Quit**



2nd-level question:

localhost / localhost:3306 / webp C-SMILE Online Test Portal

User: **Moushmi Ramya**

Classification of Students Misconceptions in Individualized Learning Environment(C-SMILE)

How a J K flip-flop is made to toggle its present state?

J=0, K=0
 J=1, K=0
 J=0, K=1
 J=1, K=1

Submit **Quit**



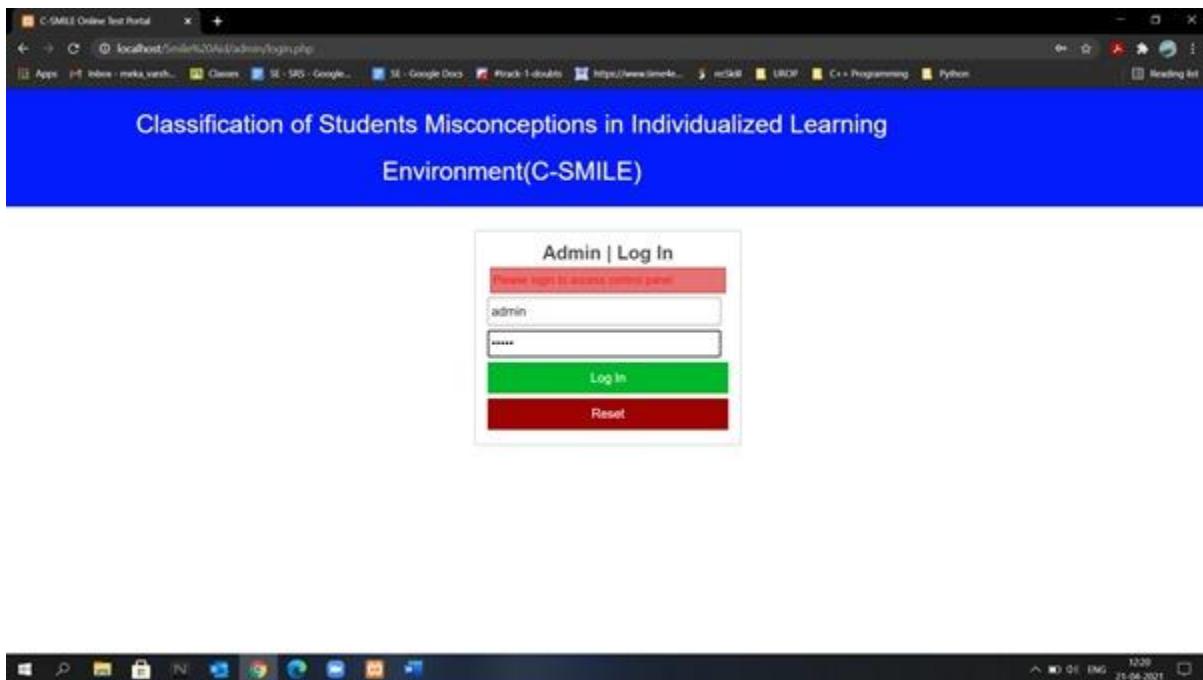
Feedback:



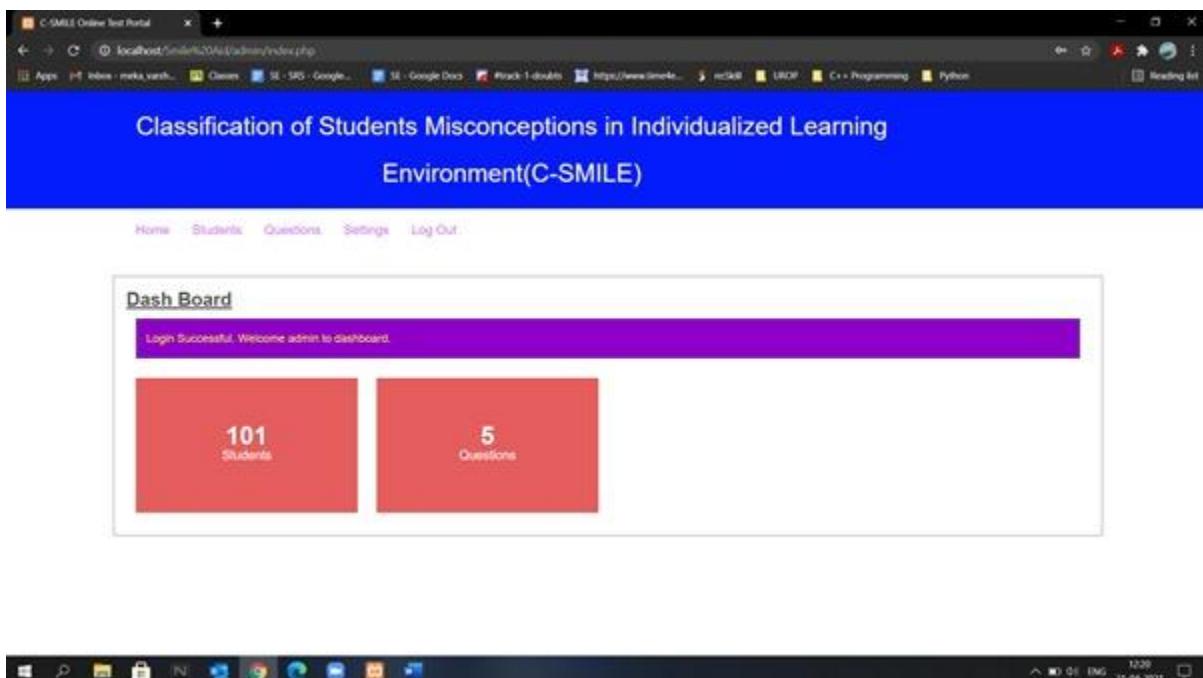
Your Answer is excellent. The instructional objective has been met.



Admin Login:



Dashboard:



Students:

Classification of Students Misconceptions in Individualized Learning Environment(C-SMILE)				
Home Students Questions Settings Log Out				
Student Manager				
S.N.	Full Name	Email	Contact	Actions
1	Moushmi Ramya	patibandia_moushmi@srmepu.edu.in	9866622268	UPDATE DELETE
2	Meka Varsha	meka_varsha@srmepu.edu.in	6303102611	UPDATE DELETE
3	Ravipudi Jahnavi	jahnavi_ravipudi@srmepu.edu.in	8333825587	UPDATE DELETE
4	Mogili Nikitha	mogili_nikitha@srmepu.edu.in	8106172291	UPDATE DELETE
5	Indra Kiran	indra@gmail.com	9177542426	UPDATE DELETE
6	Rohith Kumar	rohit@gmail.com	7660939306	UPDATE DELETE
7	Sai Kiran	sai@gmail.com	8501846041	UPDATE DELETE

Add Student:

A screenshot of a web browser displaying the 'C-SMILE Online Test Portal'. The title bar shows the URL as 'localhost:51002/Admin/index.php?page=add_student'. The main content area has a blue header with the text 'Classification of Students Misconceptions in Individualized Learning Environment(C-SMILE)'. Below the header is a navigation bar with links: Home, Students, Questions, Settings, and Log Out. The main form is titled 'Add Student' and contains fields for First Name (Mano), Last Name (G.), Email (mano@gmail.com), Username (Mano), Password (Mano), Contact (8500893578), and Gender (radio buttons for Male, Female, Other, with Male selected). At the bottom are 'Add Student' and 'Cancel' buttons.

Questions:

The screenshot shows a web browser window titled "C-SMILE Online Test Portal". The URL is "localhost:5104/csmile/admin/index.php?page=questions". The main content area has a blue header bar with the text "Classification of Students Misconceptions in Individualized Learning Environment(C-SMILE)". Below this, there is a navigation bar with links: Home, Students, Questions, Settings, and Log Out. The main content area is titled "Question Manager" and contains a table with 5 rows of questions. The columns are S.N., Question, Answer, and Actions (which includes a "DELETE" button). The questions listed are:

S.N.	Question	Answer	Actions
1.	Which of the following is the characteristic of T Flip Flop?	2	DELETE
2.	What is the next state output of T flip flop, if its input is zero?	1	DELETE
3.	How a J K flip-flop is made to toggle its present state?	4	DELETE
4.	What is the next state output of T flip flop if the input is 1?	4	DELETE
5.	If J=0, K=0 in J K flip flop, then output Q n+1 (the next state output) will be	4	DELETE

Add Question:

The screenshot shows a web browser window titled "C-SMILE Online Test Portal". The URL is "localhost:5104/csmile/admin/index.php?page=add_question". The main content area has a blue header bar with the text "Classification of Students Misconceptions in Individualized Learning Environment(C-SMILE)". Below this, there is a navigation bar with links: Home, Students, Questions, Settings, and Log Out. The main content area is titled "Add Question" and contains a form. The fields include:

- Question: A text area labeled "Ask your Question" with placeholder text "Ask your Question".
- Image: A file upload field labeled "Choose File" with the message "No file chosen".
- First Answer: A text area labeled "First Answer".
- Second Answer: A text area labeled "Second Answer".
- Third Answer: A text area labeled "Third Answer".
- Fourth Answer: A text area labeled "Fourth Answer".
- Answer: A dropdown menu labeled "Answer" with options: First Answer, Second Answer, Third Answer, Fourth Answer, and Fifth Answer.
- Buttons: "Add Question" and "Cancel".

Database for C-SMILE:

The screenshot shows the phpMyAdmin interface for the 'quizapp' database. The left sidebar lists various databases and tables. The main area displays the structure of the 'tbl_app' table, which has 4 rows and 5 columns: app_id, app_name, email, username, and password. Other tables listed are 'tbl_question', 'tbl_result', and 'tbl_student'. A 'Create table' form is visible at the bottom.

Table	Action	Rows	Type	Collation	Size	Overhead
tbl_app	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
tbl_question	Browse Structure Search Insert Empty Drop	5	InnoDB	utf8mb4_general_ci	16.0 KiB	-
tbl_result	Browse Structure Search Insert Empty Drop	209	InnoDB	utf8mb4_general_ci	16.0 KiB	-
tbl_student	Browse Structure Search Insert Empty Drop	101	InnoDB	utf8mb4_general_ci	16.0 KiB	-
4 tables	Sum	316	InnoDB	utf8mb4_general_ci	64.0 KiB	0 B

Tbl_app:

The screenshot shows the phpMyAdmin interface for the 'tbl_app' table. The table has one row with the following data: app_id (1), app_name ('C-Smile'), email ('csmile@gmail.com'), username ('admin'), password ('21232f297a57a5a743894a0e4a801fc3'), and contact ('040-22222222'). The interface includes a SQL query editor with the command 'SELECT * FROM `tbl_app`', a 'Query results operations' section with options like Print, Copy to clipboard, Export, and Create view, and a 'Bookmark this SQL query' section.

app_id	app_name	email	username	password	contact
1	C-Smile	csmile@gmail.com	admin	21232f297a57a5a743894a0e4a801fc3	040-22222222

Tbl_question:

The screenshot shows the phpMyAdmin interface for the 'tbl_question' table in the 'quizapp' database. The table has columns: question_id, question, first_answer, second_answer, third_answer, fourth_answer, answer, and image_name. There are 5 rows of data:

question_id	question	first_answer	second_answer	third_answer	fourth_answer	answer	image_name
1	Which of the following is the characteristic of T ...	a	b	c	d	2	Exam_Question_95dcfd2dfc
2	What is the next state output of T flip flop, if i...	Hold state	1	Complement of present state	0	1	
3	How a JK flip-flop is made to toggle its present ...	J=0, K=0	J=1, K=0	J=0, K=1	J=1, K=1	4	
4	What is the next state	1	0	On	(On)	4	

Tbl_student:

The screenshot shows the phpMyAdmin interface for the 'tbl_student' table in the 'quizapp' database. The table has columns: student_id, first_name, last_name, email, username, password, contact, and gender. There are 14 rows of data:

student_id	first_name	last_name	email	username	password	contact	gender
1	Moushmi	Ramya	patibandla_moushmi@srmepu.edu.in	Moushmi	Moushmi	9866622288	female
2	Meka	Varsha	meka_varsha@srmepu.edu.in	Varsha	Varsha	6303102611	female
3	Ravipudi	Jahnavi	jahnavi_ravipudi@srmepu.edu.in	Jahnavi	Jahnavi	8333825587	female
4	Mogili	Nikitha	mogili_nikitha@srmepu.edu.in	Nikitha	Nikitha	8106172291	female
5	Indra	Kiran	indra@gmail.com	Indra	Indra	9177542426	male
6	Rohith	Kumar	rohit@gmail.com	Rohith	Rohith	7680939306	male
7	Sai	Kiran	sai@gmail.com	Sai	Sai	8501846041	male
8	Chandana	Gummadi	chandana@gmail.com	Chandana	Chandana	6300034159	female
9	Divya	Kolli	divya@gmail.com	Divya	Divya	9494014888	female
10	Keerthi	Gummadi	keerthi@gmail.com	Keerthi	Keerthi	8074864252	female
11	Hitendra	Sai	hitendra@gmail.com	Hitendra	Hitendra	9959448073	male
12	Rama	Devi	rama@gmail.com	Rama	Rama	9876213476	female
13	Sobin	CC	sobin@gmail.com	Sobin	Sobin	9687423478	male
14	Sudhakar	P	sudhakar@gmail.com	Sudhakar	Sudhakar	9866622211	male

Tbl_result:

The screenshot shows the phpMyAdmin interface for the 'tbl_result' table in the 'quizapp' database. The table has four columns: 'result_id', 'student_id', 'question_id', and 'user_answer'. The data consists of 24 rows, each representing a student's answer to a specific question. The 'user_answer' column contains values 2, 3, 4, and 1.

	result_id	student_id	question_id	user_answer
1	1	1	1	2
2	2	1	3	2
3	3	2	1	4
4	4	2	1	4
5	5	5	1	2
6	6	5	3	4
7	7	4	1	1
8	8	4	2	2
9	9	14	1	4
10	10	14	2	1
11	11	15	1	3
12	12	15	2	1
13	13	15	3	4
14	14	22	1	4
15	15	22	2	1
16	16	22	1	4
17	17	22	2	1
18	18	22	3	4
19	19	22	4	1
20	20	22	1	2
21	21	22	1	3
22	22	22	2	1
23	23	22	4	1
24	24	22	1	3
25	25	22	2	1
26	26	22	3	4
27	27	22	4	1
28	28	22	1	3

The required fields of csv file for Classification:

The screenshot shows a Microsoft Excel spreadsheet titled 'classify'. It contains two columns: 'student_id' and 'user_answer'. The data consists of 28 rows, each representing a student's answer. The 'user_answer' column contains values 2, 3, 4, and 1.

	student_id	user_answer
1	1	2
2	2	3
3	3	4
4	4	1
5	5	2
6	6	4
7	7	1
8	8	3
9	9	4
10	10	1
11	11	3
12	12	1
13	13	1
14	14	3
15	15	2
16	16	1
17	17	2
18	18	1
19	19	4
20	20	2
21	21	1
22	22	3
23	23	1
24	24	2
25	25	4
26	26	1
27	27	3
28	28	1

K-means Classification:

The screenshot shows a Jupyter Notebook interface with two code cells and their outputs.

```
In [4]: plt.scatter(df.x,df.y)
plt.xlabel('user_answer_3')
plt.ylabel('user_answer_2')

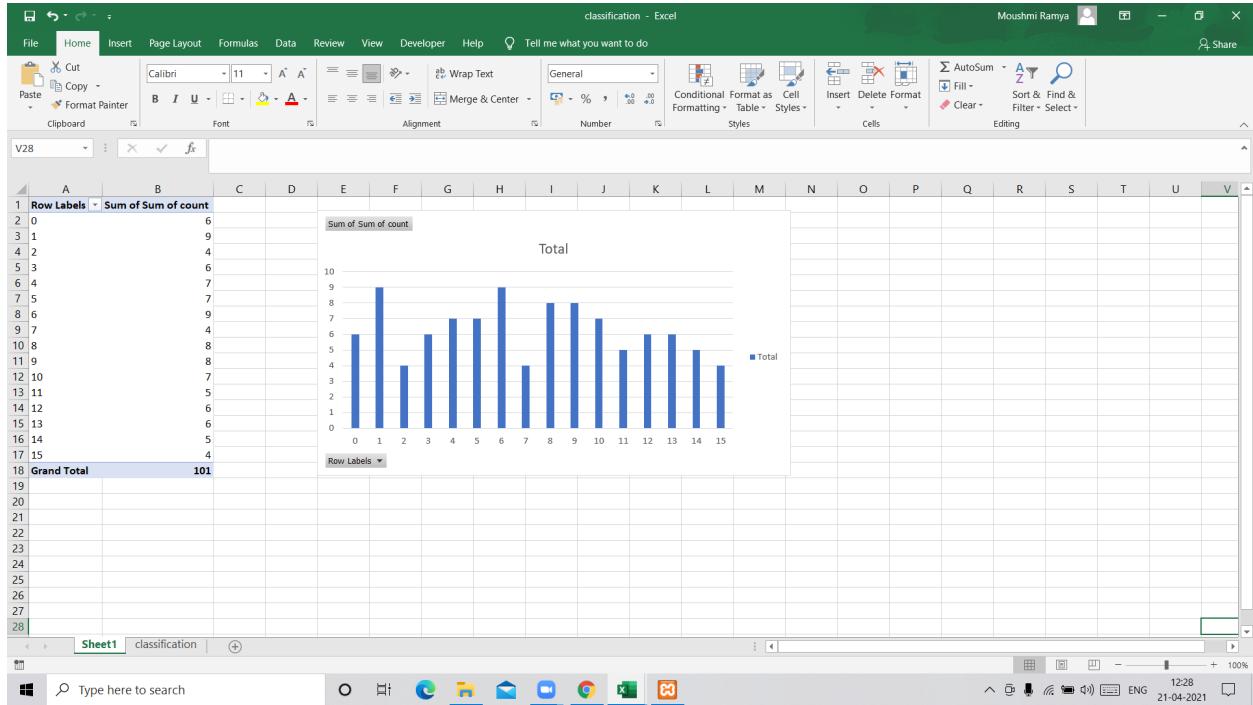
Out[4]: <Figure>
```

The output is a scatter plot with 'user_answer_3' on the x-axis (ranging from 10 to 40) and 'user_answer_2' on the y-axis (ranging from 10 to 40). The plot contains several blue dots representing data points.

```
In [5]: km = KMeans(n_clusters=10)
y_predicted = km.fit_predict(df[['x','y']])
y_predicted

Out[5]: array([ 9, 15, 10, 14, 7, 1, 15, 2, 8, 4, 3, 12, 6, 13, 11, 9, 0,
   5, 14, 3, 1, 10, 4, 7, 6, 12, 0, 5, 2, 4, 13, 7, 13, 3,
   9, 8, 0, 15, 3, 2, 0, 8, 2, 13, 15, 3, 10, 13, 6, 7, 1,
   2, 1, 9, 12, 0, 3, 6, 10, 5, 8, 6, 1, 9, 4, 1, 8, 3,
   5, 0, 12, 8, 9, 2, 4, 13, 7, 3, 1, 0, 4, 7, 11, 6, 5,
   6, 3, 1, 10, 12, 10, 14, 5, 8, 4, 1, 14, 9, 5, 11, 6])
```

Result of the Students:



Children Happiness Home Page:



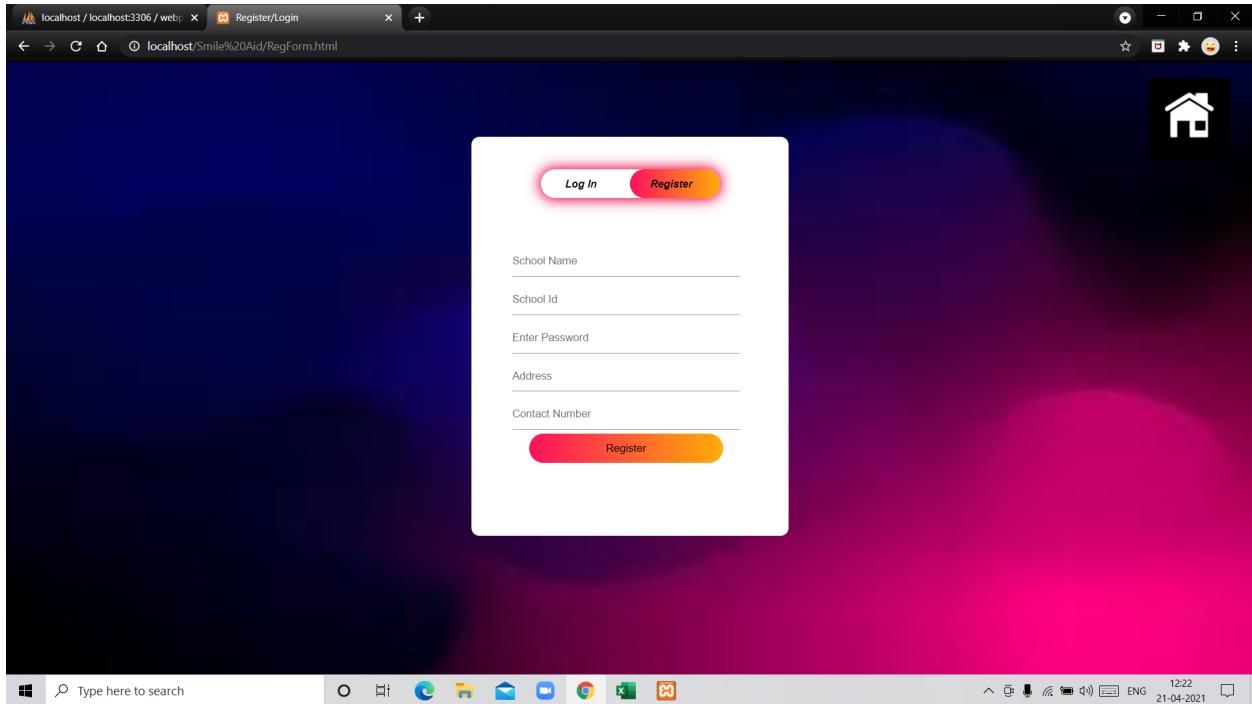
About:

Why Choose Us?

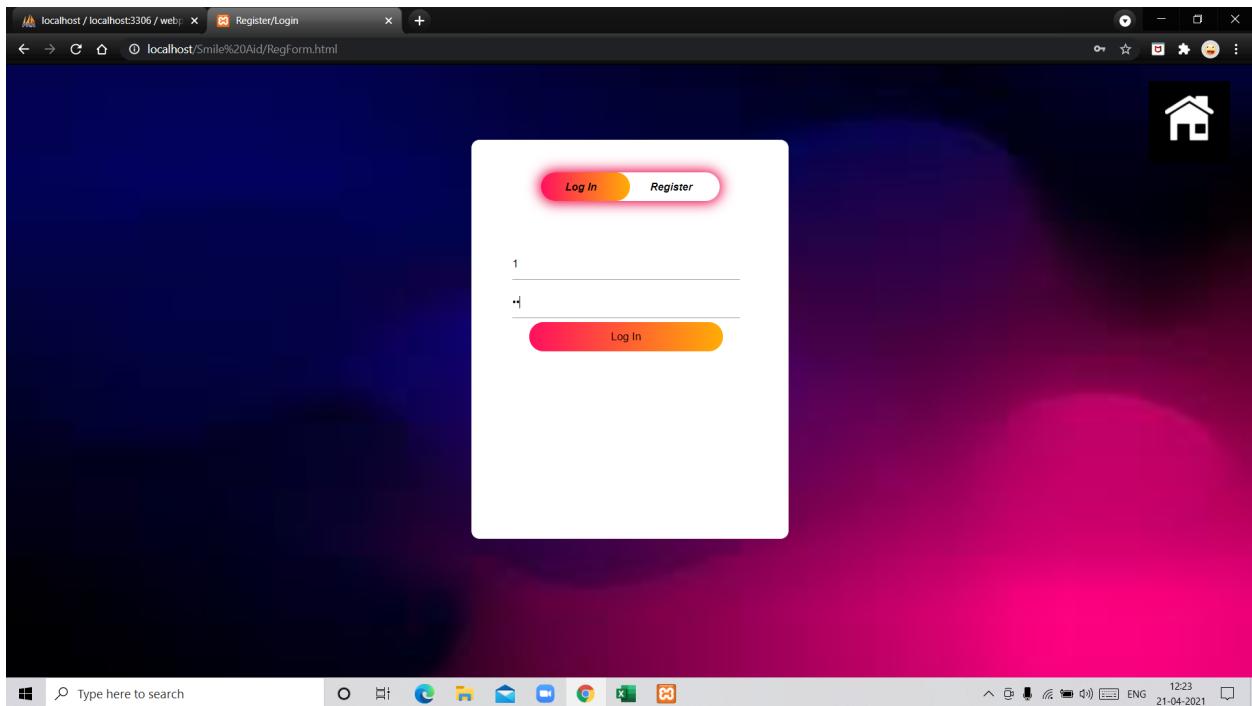
Experienced Staff

As we all know that Psychology is a scientific study of behavior and mental processes. Our main focus is on school children, We at Smile Aid are here to help you continuously monitor and assess the happiness and psychological well-being of the school children. Owing to the amount of time that a student spends in school every day and over a period of years, schools and school personnel play an important role in preventing and recognising their students emotional problems. The focus of the schools should shift from academic achievement to ensuring the emotional and mental well-being of children. Only when a child is emotionally secure and content, they can give their best. We have an online system that is enabled with the structured questionnaire, which helps identify the potential candidates/ students, who are undergoing psychological pressure. This way, they could be identified at early stages.

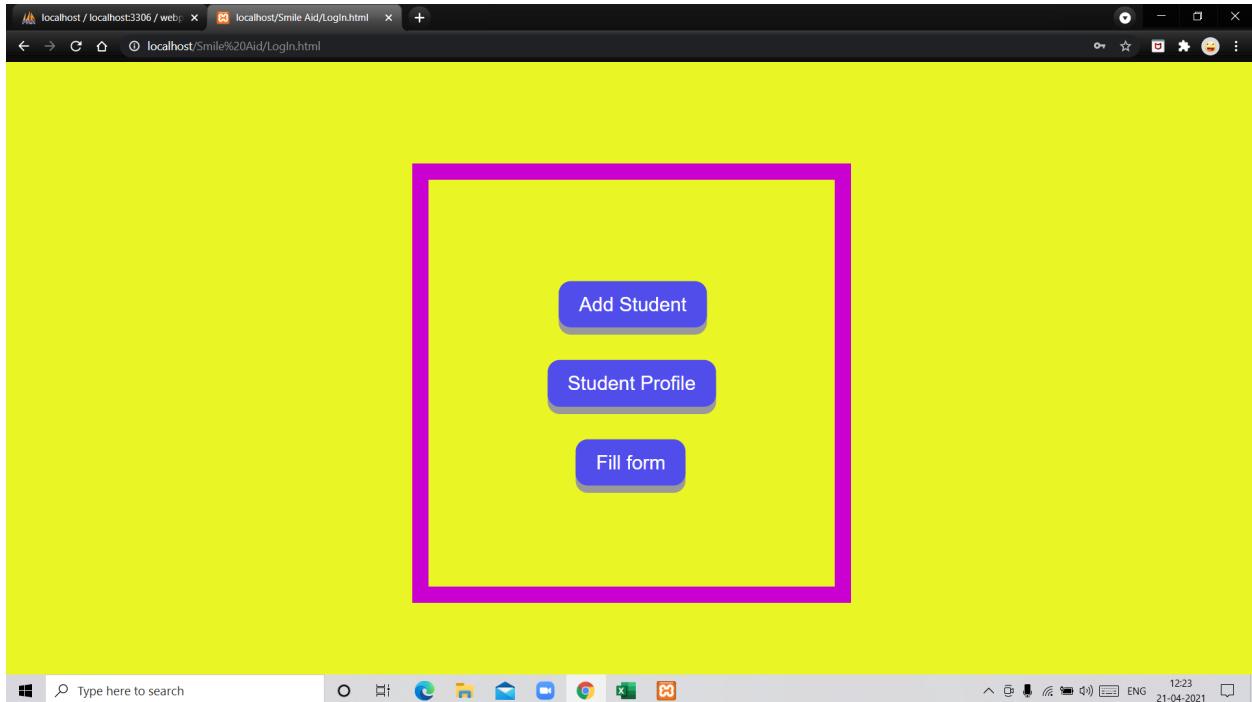
Registration:



Login:



Functions Available:



Add Student:

A screenshot of a web browser window titled 'Add Student Details'. The address bar shows 'localhost / localhost:3306 / webp' and 'localhost/Smile%20Aid/Add%20student.html'. The main content area contains a form with the following fields:

- Name:
- Class:
- Age:
- Student Id:
- Select your Gender:
• Male • Female
-

The entire form is enclosed within a large black rectangular frame. Below the browser window is a taskbar with various pinned icons and system status indicators.

Student Details:

The screenshot shows a web browser window with the title "Student Details". At the top, there is a search bar labeled "Enter-Id" and a blue "Search" button. Below the search area is a table with the following columns: Sno, Name, Class, Age, Student id, Gender, and Group. There is one row of data: Sno is 1, Name is Varsha, Class is 8, Age is 12, Student id is 1, Gender is f, and Group is C.

Sno	Name	Class	Age	Student id	Gender	Group
1	Varsha	8	12	1	f	C

Form for Evaluation :

The screenshot shows a web browser window displaying a Google Form titled "Happiness Evaluation". The form instructions state: "Below are a number of statements about happiness. Please indicate how much you agree or disagree with each by entering a number in the blank after each statement, according to the following scale:". The scale options are: 1 = strongly disagree, 5 = neutral, 10 = strongly agree. A note at the bottom says "* Required". The form is divided into sections: "Personal Details", "Student ID *", and "Evaluation Questions". The "Evaluation Questions" section contains a single question: "Your answer".

Database for Children Happiness:

localhost / localhost3306 / webpage

phpMyAdmin

Server: localhost:3306 » Database: webpage

Structure SQL Search Query Export Import Operations Privileges Routines Events More

Filters Containing the word:

Table	Action	Rows	Type	Collation	Size	Overhead
login	Browse Structure Search Insert Empty Drop	100	InnoDB	utf8mb4_general_ci	16.0 Kib	-
register	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 Kib	-
2 tables Sum		101	InnoDB	utf8mb4_general_ci	32.0 Kib	0 B

Print Data dictionary Create table

Name: Number of columns: 4 Go

Type here to search

Table Register:

localhost / localhost3306 / webpage

phpMyAdmin

Server: localhost:3306 » Database: webpage » Table: register

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Showing rows 0 - 0 (1 total, Query took 0.0078 seconds.)

SELECT * FROM `register`

Show all Number of rows: 25 Filter rows: Search this table

+ Options Edit Copy Delete Sno name id password address phone

1 Presidency 1 p1 Nizamabad 6303102611

Show all Number of rows: 25 Filter rows: Search this table

Query results operations Print Copy to clipboard Export Display chart Create view

Bookmark this SQL query Label: Let every user access this bookmark

Console

Type here to search

Table Login:

The screenshot shows the phpMyAdmin interface with the following details:

- Server:** localhost:3306 / webpage
- Database:** webpage
- Table:** login
- Query Result:** Showing rows 0 - 99 (100 total, Query took 0.0092 seconds.)
- SQL Query:** SELECT * FROM `login`
- Table Structure:** Sno, name, class, age, sid, gender, group
- Data Rows:**

Sno	name	class	age	sid	gender	group
1	Varsha	8	12	1	f	C
2	Ramya	9	13	2	f	C
3	Jahnavi	10	15	3	f	B
4	Nikitha	10	15	4	f	C
5	Rohith	8	13	5	m	B
6	Indra	10	15	6	m	B
7	Aashritha	7	12	7	f	B
8	Jeevan	8	13	8	m	B
9	Divya	7	11	9	f	B
10	Kolli	7	12	10	f	A
11	Ranitha	10	15	11	f	C
12	Maka	12	16	12	m	C
13	Kiran	9	15	13	m	A
14	Leela	7	12	14	f	B

Form Responses:

The screenshot shows an Excel spreadsheet titled "Happiness Questionnaire" with the following details:

- File:** Happiness Questionnaire - Excel
- Columns:** A through W
- Row 1 Headers:** Timestamp, Student ID, I am happy, I find beau, I am always, I can sleep, I don't feel, I don't bec, I feel enco, I don't wo, I don't get, I don't fee, Score
- Data Rows:** Rows 2 through 28, each containing timestamp, student ID, and 11 numerical responses followed by a score.

Timestamp	Student ID	I am happy	I find beau	I am always	I can sleep	I don't feel	I don't bec	I feel enco	I don't wo	I don't get	I don't fee	Score
4/20/2021	1	9	8	6	8	7	7	5	4	7	8	69
4/20/2021	31	8	7	9	7	9	7	7	9	7	6	76
4/20/2021	2	9	9	8	7	7	7	8	8	7	9	79
4/20/2021	32	3	5	2	7	9	7	10	2	5	4	54
4/20/2021	3	6	7	5	4	4	5	7	7	7	6	58
4/20/2021	4	9	8	9	7	6	8	4	6	6	5	68
4/20/2021	33	10	9	10	10	10	9	9	10	10	9	96
4/20/2021	5	5	6	5	5	4	5	6	5	6	7	54
4/20/2021	34	1	3	2	4	3	2	2	3	2	1	23
4/20/2021	6	9	9	10	8	6	4	9	4	6	3	68
4/20/2021	35	7	3	9	2	4	10	3	9	3	6	56
4/20/2021	7	5	3	4	10	4	1	5	4	9	2	47
4/20/2021	36	6	5	6	5	5	6	6	6	7	4	56
4/20/2021	37	8	4	2	3	6	3	9	6	3	8	52
4/20/2021	8	4	6	4	2	8	7	5	7	3	8	54
4/20/2021	38	9	1	2	1	7	5	3	6	3	8	45
4/20/2021	39	8	2	9	2	8	3	9	2	10	2	55
4/20/2021	9	6	4	7	3	7	3	4	5	3	5	47
4/20/2021	10	5	3	2	5	3	4	3	4	3	4	36
4/20/2021	40	8	5	3	5	2	8	2	9	3	4	49
4/20/2021	11	8	4	8	6	4	8	7	6	9	8	66
4/20/2021	12	9	7	8	7	9	7	9	7	8	7	78
4/20/2021	13	2	3	4	3	4	3	4	3	5	3	34
4/20/2021	14	8	6	9	6	3	4	6	4	5	6	57
4/20/2021	41	9	6	8	3	4	4	5	8	6	4	57
4/20/2021	42	3	5	4	8	3	10	3	3	5	3	47
4/20/2021	43	7	2	8	4	1	9	1	8	3	5	48

K-Means Classification:

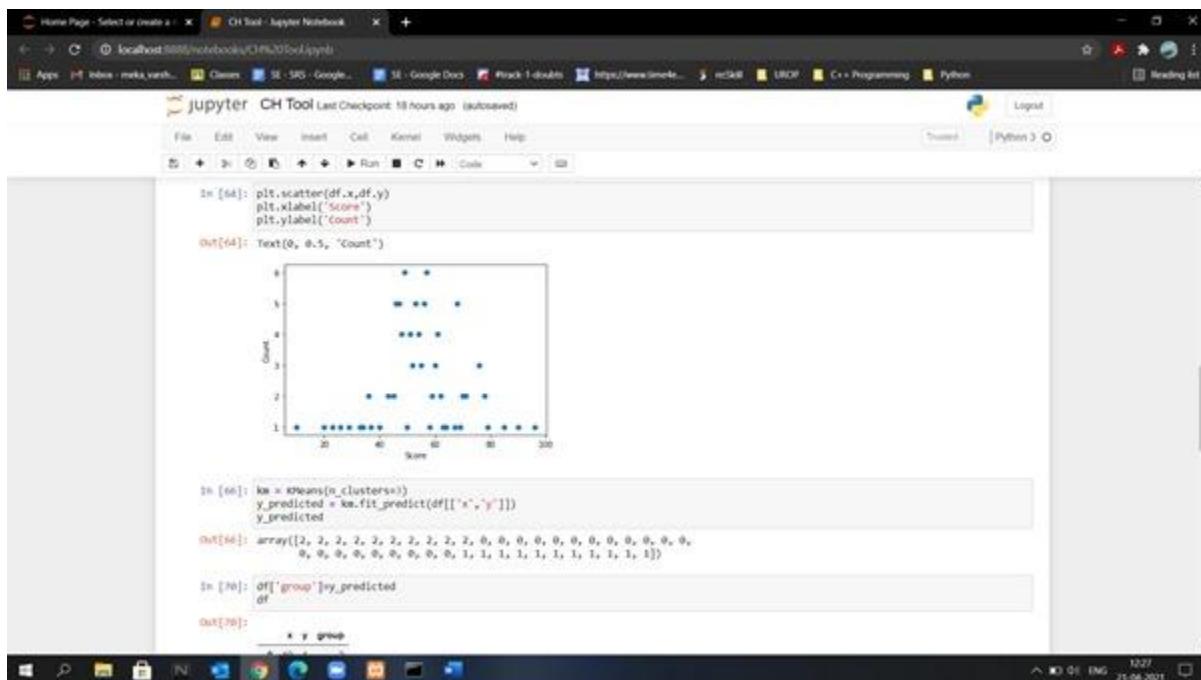


Table after Classification:

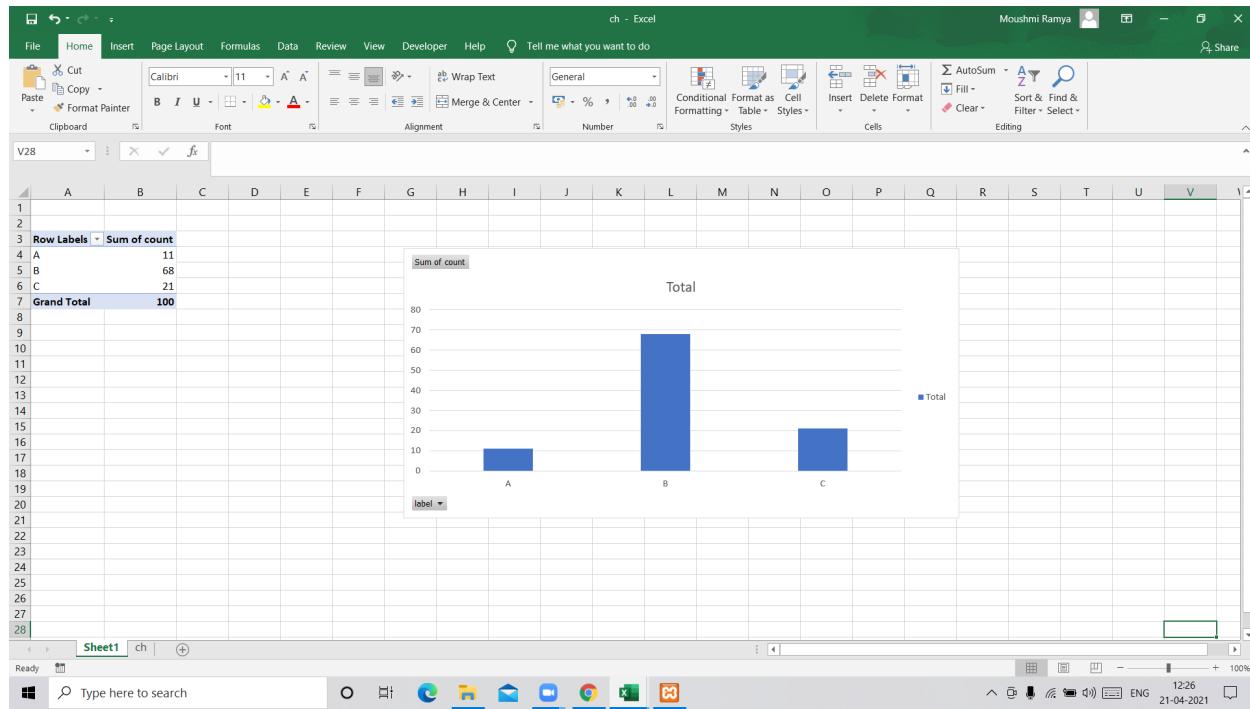
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1		Timestamp	Student ID	I am happy!	I find beau	I am always	can I sleep	I don't feel	I don't feel	I feel enco	I don't wo	I don't get	I don't fee	Score	label	count							
2	0 4/20/2021	1	9	8	6	8	7	7	5	4	7	8	69	C		1							
3	2 4/20/2021	2	9	9	8	7	7	7	8	8	7	9	79	C		1							
4	4 4/20/2021	3	6	7	5	4	4	5	7	7	7	6	58	B		1							
5	5 4/20/2021	4	9	8	9	7	6	8	4	6	6	6	55	C		1							
6	7 4/20/2021	5	5	6	5	5	4	5	6	5	6	7	54	B		1							
7	9 4/20/2021	6	9	9	10	8	6	4	9	4	6	3	68	C		1							
8	11 4/20/2021	7	5	3	4	10	4	1	5	4	9	2	47	B		1							
9	14 4/20/2021	8	4	6	4	2	8	7	5	7	3	8	54	B		1							
10	17 4/20/2021	9	6	4	7	3	7	3	4	5	3	5	47	B		1							
11	18 4/20/2021	10	5	3	2	5	3	4	3	4	3	4	36	A		1							
12	20 4/20/2021	11	8	4	8	6	4	8	7	6	9	8	68	C		1							
13	21 4/20/2021	12	9	7	8	7	9	7	9	7	8	7	78	C		1							
14	22 4/20/2021	13	2	3	4	3	4	3	4	3	5	3	34	A		1							
15	23 4/20/2021	14	8	6	9	6	3	4	6	4	5	6	57	B		1							
16	28 4/20/2021	15	8	4	6	3	6	4	6	4	7	5	53	B		1							
17	29 4/20/2021	16	5	4	4	8	6	6	6	5	3	3	50	B		1							
18	31 4/20/2021	17	2	3	2	5	5	3	5	3	4	5	37	A		1							
19	33 4/20/2021	18	7	8	6	9	4	5	9	7	6	7	68	C		1							
20	35 4/20/2021	19	7	9	7	5	7	5	8	6	7	9	70	C		1							
21	36 4/20/2021	20	9	6	7	9	5	3	6	5	7	7	64	C		1							
22	38 4/20/2021	21	8	7	10	7	6	7	6	7	6	7	71	C		1							
23	40 4/20/2021	22	5	4	6	7	5	4	5	3	4	6	49	B		1							
24	41 4/20/2021	23	4	3	3	5	5	4	2	5	2	7	40	A		1							
25	43 4/20/2021	24	8	3	9	2	3	5	3	4	3	7	47	B		1							
26	45 4/20/2021	25	4	4	6	8	7	7	6	4	6	8	60	B		1							
27	47 4/20/2021	26	3	6	7	7	6	3	6	6	5	8	57	B		1							
28	48 4/20/2021	27	6	5	6	8	8	8	9	7	4	6	67	C		1							

Result:

A-Need Immediate Attention

B-Moderately Fine

C-Happy Children



Chapter 8

Conclusion

Proposed a system for students who need support psychologically and in academics. The design and implementation of the Smile Aid is simple. The UI is designed using HTML and CSS. The classification is done by using K-Means Clustering algorithm.

The Children Happiness system is enabled with the structured questionnaire, which helps identify the potential candidates/ students, who are undergoing psychological pressure. This way, they could be identified at early stages and give them psychological training. The C-SMILE is designed to enhance a student's conceptual understanding and at last learning outcome individualized learning. The main purpose of this two-level assessment is to provide meaningful feedback to students where students can monitor their learning progress using the feedback through this system. It also increases the learner's confidence and motivation to learn and grow.

Therefore, through this Smile Aid holding two developed designs, C-SMILE and Children Happiness helps the children to improve their conceptual understanding and to have good mental health. Further work can involve in developing the questionnaire and improving the question types for the assessment.

Chapter 9

Bibliography

1. López-Pérez, B., & Wilson, E. L. (2015). Parent–child discrepancies in the assessment of children’s and adolescents’ happiness. *Journal of experimental child psychology*, 139, 249–255.
2. Holder, M. D., & Klassen, A. (2010). Temperament and happiness in children. *Journal of Happiness Studies*, 11(4), 419–439.
3. Thoilliez, B. (2011). How to grow up happy: An exploratory study on the meaning of happiness from children’s voices. *Child Indicators Research*, 4(2), 323–351.
4. Van Hal, G., Bruggeman, B., Aertsen, P., Gabriëls, J., Marechal, E., Mortelmans, W., ... & Van Dongen, S. (2014). A survey on happiness in primary school children in Flanders: Guido Van Hal. *European Journal of Public Health*, 24(suppl_2), cku165-006.
5. Tan, Y., Singhapreecha, C., & Yamaka, W. Applying Machine Learning to Predict Happiness: A case study of 20 Countries.
6. Lambert, M., Fleming, T., Ameratunga, S., Robinson, E., Crengle, S., Sheridan, J., ... & Merry, S. (2014). Looking on the bright side: An assessment of factors associated with adolescents’ happiness. *Advances in Mental Health*, 12(2), 101–109.
7. Badri, M., Al Nuaimi, A., Guang, Y., Al Sheryani, Y., & Al Rashedi, A. (2018). The effects of home and school on children’s happiness: A structural equation model. *International Journal of Child Care and Education Policy*, 12(1), 1–16.
8. Abdel-Khalek, A. M. (2006). Measuring happiness with a single-item scale. *Social Behavior and Personality: an international journal*, 34(2), 139–150.
9. Anand, P., & Roope, L. (2016). The development and happiness of very young children. *Social Choice and Welfare*, 47(4), 825–851.
10. Alavinia, S. M., C. van Duivenbooden, and A. Burdorf. 2007. “Influence of Work-related Factors and Individual Characteristics on Work Ability among Dutch Construction Workers.” *Scandinavian Journal of Work, Environment & Health* 33 (5): 351–357.
11. Halkos, G., and D. Bousinakis. 2010. “The Effect of Stress and Satisfaction on Productivity.” *International Journal of Productivity and Performance Management* 59 (5, Jun.): 415–431.
12. Broch-Due, I., H. L. Kjaerstad, L. V. Kessing, and K. Miskowiak. 2018. “Subtle Behavioural Responses during Negative Emotion Reactivity and Downregulation in Bipolar Disorder: A Facial Expression and Eye-tracking Study.” *Psychiatry Research* 266: 152–159.
13. Holder, M. D. (2012). *Happiness in children: measurement, correlates and enhancement of positive subjective well-being*. Springer Science & Business Media.
14. Roessler, J., & Gloor, P. A. (2020). Measuring happiness increases happiness. *Journal of Computational Social Science*, 1–24.

15. Jaques, N., Taylor, S., Azaria, A., Ghandeharioun, A., Sano, A., & Picard, R. (2015, September). Predicting students' happiness from physiology, phone, mobility, and behavioral data. In *2015 International Conference on Affective Computing and Intelligent Interaction (ACII)* (pp. 222-228). IEEE.
16. Tsou, M. W., & Liu, J. T. (2001). Happiness and domain satisfaction in Taiwan. *Journal of Happiness Studies*, 2, 269–288.
17. Campbell, A. (1981). The sense of well-being in America. New York: McGraw-Hill.
18. Paul Ekman. 1993. Facial expression and emotion. *American Psychologist*, 48(4), 384–392.
19. Janet Cahn. 1990. The generation of affect in synthesized Speech. *Journal of the American Voice I/O Society*, 8:1–19.
20. A. M. Martinez. A Model of the Perception of Facial Expressions of Emotion by Humans: Research Overview and Perspectives, 2012.
21. K. Nyiri, "Towards a Philosophy of M-Learning", Proceedings of the IEEE International Workshop on Wireless and Mobile Technologies in Education (WMTE'02), 2002.
22. Alex Pongpech, Maria E. Orlowska and Shazia W. Sadiq. Personalized Courses Recommendation Functionality for Flex-eL. Seventh IEEE International Conference on Advanced Learning Technologies (ICALT 2007), 2007.
23. Owen Conlan, Ian O'Keeffe, Aoife Brady and Vincent Wade. Principles for Designing Activity-based Personalized eLearning. Seventh IEEE International Conference on Advanced Learning Technologies (ICALT 2007), 2007.
24. Soller, A. (2001). Supporting Social Interaction in an Intelligent Collaborative Learning System. *International Journal of Artificial Intelligence in Education*, 12, 40-62.
25. Shepard, L. (2000). The Role of Assessment in a Learning Culture. *Educational Researcher*, 29 (7), 4-14.
26. Gharpure, P. & Mudur, S. (2000). On Knowledge Representation In Individualized Learning.
27. Bhagat, K. K., Subheesh, N. P., Bhattacharya, B., & Chang, C. Y. (2016). The design and development of identification of students' misconceptions in the individualized learning environment (iSMILE) system. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(1), 19-34.
28. Weisgerber, R. A. (1971). Perspectives in Individualized Learning.
29. Gallagher, P. A., Abbott-Shim, M., & VandeWiele, L. (2011). An evaluation of the individualized learning intervention: A mentoring program for early childhood teachers. *NHSA Dialog*, 14(2), 57-74.