Indian Institute of Technology Guwahati
Department of Computer Science & Engineering

Software Engineering Lab (CS346) Projects, January – May (2021) Session

Problem 1: Time management tool for students:
Whether in high school or universities, managing time helps you to be a great student. Good time management skills help students prioritize tasks, so they are able to complete school work and assignments on time. Students can plan, set aside the time they need for completing the projects and assignments and make better use of that time. Becoming better at managing time allows students to become more confident and learn more effectively. It can also help students avoid the dreaded procrastination problem, which can be a slippery slope to stress, frustration, and low grades. In order to manage time effectively and become organized, a student may incorporate many tricks in their life. These may include:

- Creating a master schedule that can prioritize the projects/assignments and provide a structure to help keep them on track to meet due dates
- Use a schedule that can look ahead to all upcoming assignments and record the due dates in a schedule
- Set goals for each study session (e.g., how many pages of a book report to write or how many math questions to complete)
- Start working on assignments early to help them leave homework/tasks until the day before they are due.

In this project, develop software that can help the students managing their time effectively.

Problem 2: Classnote taking application:
Taking good notes in class is an integral part of academic success in college. Actively taking notes during class sessions can help you focus and better understand the main concepts. Taking notes on both synchronous and asynchronous material can help students better remember what they hear and see. Efficient and concise notes can also save time, energy, and confusion for a student. There is no right format to use when taking notes. Preferably, many different structures and styles can be used to take quality notes. The following way a student can do the note-taking

- keeping sections for the date, essential question, topic, notes, questions, and a summary; using flow charts and concept maps;
- writing outline to organize the lecture by main points, allowing room for examples and details.
- using a flowchart/concept map to represent the lecture content visually
- Organizing notes from lectures with a substantial amount of facts through dividing key topics into columns and recording facts underneath
- or quickly covering essential details and information

Design and develop software that can be useful for a student while taking class notes.

Problem 3: Money Manager application for college students:

Being good with money is about more than just making ends meet. Especially in student life (in college/universities), money management can feel monstrous and overwhelming. Balancing that bank account or the money in their pocket might seem doubly tricky. Maybe they have just seen the bill for their textbooks this semester and felt their stomach drop. They possibly never paid much attention to how much they just spent on the canteen or is that the monthly Netflix subscription which is consuming significant amount of their pocket money. Whatever the culprit is, when they have adequate financial skills, a student's life can be much more comfortable. How can they manage their money? Probably they can

- make a budget for everything where they save a portion of money every month,
- keep track of how much they spent and where they have spent,
- save the online coupons,
- and keep track of their credits and debits.

To help the students make a software so that they can use it as a tool to manage their money.

Problem 4: Inter IIT Tournament Management System:

Inter IIT Tournament is the annual sports tournament of the Indian Institutes of Technology. It is organized in December every year. Seven old IITs take turns hosting the event. Tournaments are held in different sports: Athletics, Badminton, Basketball, Cricket, Football, Hockey, Lawn Tennis etc. As the number of events is vast, the participants from the different institutes may get confused about the event venue, timing, and other event updates. It is very necessary for the event manager to notify the event updates to all the participants. E.g. If there is any change in event timing or venue, the event manager has to inform the participants about the change. Moreover, the participants may want to see their institute's current score for the sport events their institute is participating.

In this project, you have to develop a software solution to help the event manager to smoothly communicate with the participants and also the participants to get the necessary event updates.

Problem 5: A Deal Finder Service:

Online shopping makes the shopping process easy. But it often happens that you buy something from an eCommerce site and later you realize it could have been much cheaper in another eCommerce site. Sometimes these eCommerce platforms such as Flipkart, amazon show different prices for the same product. To not be a fool next time, you can do extensive search on your product prices and also search for valid coupon codes. Doing this can save lots of money in the end.

In this project, you have to develop a software solution that can help a shopper find the best deals while buying a product from the eCommerce website.

Problem 6: Automated Live Classroom Performance Evaluation:

Nowadays, automated evaluation is an essential part of any educational organization. The teacher requires the live classroom performance evaluation application to quickly evaluate students' performance and get feedback about their teaching quality. The evaluation process may include:

- Evaluation of one-word answers and objective type questions.
- View the examination performance, both historical and real-time, on the teacher/student device.
- View the top scorer and other related details (average score, lowest score, etc.) if needed.

Students can also see their performance reports instantly (i.e., after the exam over). The automated evaluation helps the teacher save time, which can be better used by solving doubts of the students. A student gets periodic performance reports faster, which helps students to improve their learning.

Design a software solution for a teacher and student considering the evaluation process mentioned above.

Problem 7: Paint application:

Painting aids children to develop mobility skills. Their hand muscles are being used, which allows them a scope to grow both mentally and physically. Teaching a child to draw might seem like a difficult task, especially when the child is five to nine years old. At this age, a child can start drawing based on observation. Often we need to make sure that the experience that the child is having is associated with fun. The object the child is drawing should not be that complex that s/he cannot achieve that task. It should be simple and colourful. E.g., when a child is given a picture of a cup to draw, the design of that cup should not be so complex that it is hard for a child to sketch and fill colour into it. Moreover, a reward after a successful painting is beneficial to motivate them.

In this project, you have to build an application for the children of five to nine years age.

Problem 8: Immersive human digestive system tour:

Students of older primary schools often have difficulty understanding the different systems inside the human body. One of the most complex systems is the human digestive system. It is common for students to acknowledge the separate organs' qualities rather than seeing the interactions between the parts of a system. Getting the wrong idea about how they work together can hinder further learning. This can be solved with the proper visualization of how the organs work together, giving them a broader idea of the human digestive system. E.g. If they can visualize how the mouth, gut (which includes stomach and intestines) and anus are all organs that work together in different ways to absorb nutrients and expel wastes from the body's tissues and cells they may get the clear understanding how each organ functions.

Design an immersive Virtual Reality (VR) application that can help students of older primary schools to learn about the functions involved in the human digestive system.