UX Engineering

Milestone I

Code & Watch

A project by **Yen-Duo**

Malik Atif Aziz [i15-0057]

Ibrahim Ikram [i15-0278]

Section I: Design Brief

Design Problem

Computer Science has attracted thousands of students in past 2 decades and is still open for a lot of research and development. In our country, half of the students who end up in a computing field never thought of or were never aware of it during their high schools and therefore, they (despite the fact that they are high achievers) find it difficult to easily grasp the basic programming techniques and specifically data structures during their initial days and understanding of those days is plays vital role throughout their career.

Target Audience

New generation students have shorter attention spans, they are technologically savvy, and their information overflow and constant connectivity calls for changes in the way knowledge is presented and consumed. We are basically targeting the computer science students who are trying to learn data structures and other basic programming techniques, of any age group and whether they are enrolled in any school/university or not.

Competitive Landscape

There are several online tools which help in visualizing data structures and algorithms which are

- Visualgo.net
- courses.cs.washington.edu
- Python Tutor

System Goals

- User can write code and see the visualization in real time.
- User can save any animation or video for later use or revision.
- User can add friends and they can watch and discuss together while being on audio/video call.

There are tools currently available on internet which provide the similar functionality but some are the property of Universities while others don't provide visualization of user's own code. They contain videos which are similar as watching a video on YouTube. If we consider thousands of related videos on YouTube etc, users find it tedious to search for the thing they actually want from pool of more than million videos. Secondly, there is no tool currently available on which you can add your friends and can talk. Therefore, we are combining different needs at one place to enhance students' experience.

Section II: Needs Finding Study Plan

High-level goals of the study

- How do our current audience communicate with their friends for understating concepts?
- How do students find related videos for understanding?
- What are the problems faced by our target population while using existing methods?
- How can we add value to our product to make it better suited to the needs of our target population?

Recruiting Strategy

We will consider following things while picking up the candidates for conducting interviews and our research. As we have divided our users into different classes; therefore, it would allow us to have opinion of almost every type of user our application will encounter.

Semester	CGPA	Studied DS Course	Academic Background	Avg. Grade in ITC/CP/DS
1st/2nd/3rd/4th	Above & below 2.5	Both, yes & no.	IT or non-IT	A/B and C-F

Interview Protocol

We plan to follow following protocol while interviewing our participants in order to gather better and high quality data for our product.

- Start by asking name, semester#, age and inform them that we are conducting a study for research purpose.
- Take their permission to record their audio or video, if they aren't comfortable, drop this idea.
- If possible, try to take interview at a peaceful place.
- Ensure them that entire data gathered will only be used them exclusively for UX project and data privacy will not be breached.
- Use kind winds, be polite and respectful to juniors or seniors, no matter what.

- If anyone is reluctant in telling CGPA, do not insist.
- Ask them about their educational background and how they ended up in a Computer Science degree.
- How is their degree treating them, what they think were the difficulties they faced while grasping basic concepts of programming?
- What are their comments on existing visualization tools (if they've used)?
- Divert from scripted questions and have some informal talk, observe each and every pain point.
- Notice if you think they are not telling the true story.
- Do not force them to answer any question, let them speak and listen to them.
- If possible, request them to perform the similar task in any lab and notice how they do it and then take their comments on the existing solution.
- When you are done with your questions, ask them if they are curious about something?