ETERNITY - Scientific Calculator

Team F
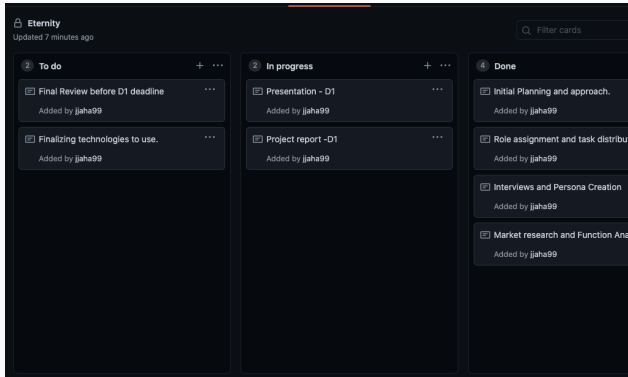
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$11^{th} June, 2021$

Concordia University - Comp 354

Our Approach so far

- Bi-Weekly Meetings
- Requirement Gathering
- Research and Planning
- Version control Via GitHub

Team Organization

- Bi-weekly meetings every Friday and Sunday
- Documenting meeting minutes and agenda through shared google doc
- Mutual support and positive re-enforcement
- Frequent feedback and communication over chat on Discord
- Collaborative and Inclusive Decision-making

Name	Individual Responsibilities	Group Responsibilities	Function
Matteo	Function Report, Interview, Persona	Main Presenter	ab^x
Michael	Function Report, Interview, Persona	Q&A	MAD
Arman	Function Report, Interview, Persona	Minor Presenter	σ
Jainil	Function Report, Interview, Persona	Presentation	$\arccos(x)$
Kevin	Function Report, Interview, Persona	Report	x^y
Pooya	Function Report, Interview, Persona	Report	$\sinh(x)$
Yaqi	Function Report, Interview, Persona	Report	$\log_b x$

Research and Planning

Our approach was based on Iterative Development and collaboration through the following steps:-

- Equation Analysis and Research
- Handpicking interviewees
- Designing personas from the interviews
- Developing use cases

The Questioning method was based on the funnel model to extract basic information for the Personas from the Interviews conducted in a semi-structured manner.

- A set of 29 questions were finalized
- Interviews were set up to be open ended and diverse
- Over 12 interviews were conducted in total

Example of question's asked

- What tasks or jobs would you say you mostly do in your field of study/work?
- Are there any functions you feel should be included in a Scientific Calculator but aren't?
- What function/ functions do you usually need from a Scientific Calculator most?
- What should the precision for a Scientific Calculator be?
- When using a calculator do you prefer to receive a step by step solution or simply a final answer?
- Do you think a history is essential for a calculator? If yes, how big should the history be?

Research and Planning: Personas

Persona Template

- Name
- Gender
- Age
- Disabilities and restrictions
- Education
- Profession
- Values
- Goals
- Frustrations
- Hobbies
- Needs
- Location of Use
- Computer Literacy
- Special needs when using a computer
- Mathematical proficiency

Types of personas

Two broad categories of Users/Personas:-

1. Student's
2. Professional's

Example of a Student Persona

Anas Peerzada (23 - M)

EDUCATION   Concordia University - *BEng in Comp Sci*

OCCUPATION   Freelance Game Developer

VALUES   Hardwork, Creativity, Integrity

GOALS   Make games and movies, Start his own business.

FRUSTRATIONS   Impassible blocks in productivity caused by Bureaucracy and red tape

NEEDS   Structure, Privacy, Clarity and Precision. Diversity in the types of calculations allowed including but not limited to Trigonometry, Vector maths, Linear algebra, Statistics and 3D-Maths. Also, Access to calculator history is a must.

Computer and Mathematical proficiency   Above average proficiency in computers, knows his way around the computer and familiar with CLI, Intermediate programmer, Proficient in linux, windows and Mac Os. Also familiar with most of the Math functions required for the project.

Example of a Professional Persona

Erfan Nejaty (24 - M)

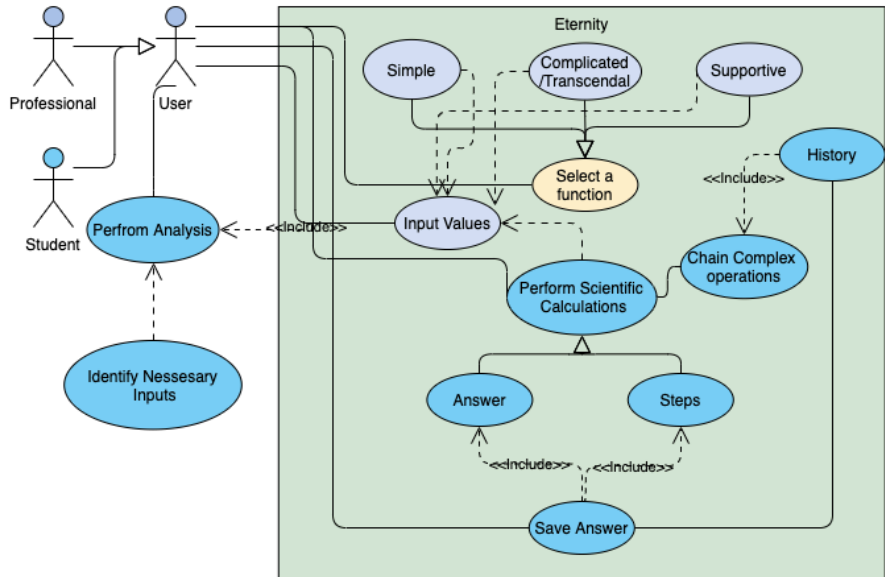|	
EDUCATION	*Graduate in Industrial Engineering*
OCCUPATION	Satistical and Business analyst Solico - 1 year and 7 months
VALUES	Detail Oriented. Passionate
GOALS	Learn new tools and Improve upon his skills and make an impact on real world problems. Start his own Business.
FRUSTRATIONS	Does not like crunching numbers into a handheld device. Instead, prefers using excel for large data.
NEEDS	He needs a calculator which implements statistical calculations.
Computer and Mathematical proficiency	As a professional he has experience with several applications. Subsequently, his professions requires him to practise Mathematics on a daily basis

Interview Analysis

The following information was inferred by the team after conducting the interviews:-

- Interviewee's preferred a digital calculator over Handheld
- Access to calculator history is a must
- Interviewee's requested for a simpler UI
- Option for step by step solution
- Most interviewee's did not use the transcendental function on a regular basis

Key Takeaways: Calculator needs to be **Simple**, to have a **History**, to offer **Step by step solution**.

Technologies

Technologies Used

- Python 3.9
- Flask 2.0
- Angular 8
- Pytest
- GitHub pages for hosting
- Overleaf
- Google Docs
- Visual Paradigm for visualization

Summary

Get the source of the project on

github.com/rmanaem/eternity/tree/master

Questions?