SSIP HACKATHON 2022:

Synopsis Report

Team Name: Daemon Devs

Problem Statement ID: PID472 (E-LIBRARY)

Team Members:
Harsh Awasthi
Kathan Jani
Ayush Jha
Priyanka Javani
Hardik Jain
Rushit Prajapati

Mentor:
Mr. Parimal Patel

Introduction:

Problem Statement Details:

Name of the Industry	Jamnagar Municipal Corporation
Type of Industry	MNC
Problem Statement	E-Library
Challenge description with context	An app with various e-books for students and other citizens Portal sharing various important and knowledge-worthy books for students and citizens. Also should contain e-copy of Previous years papers for SSC and HSC students.
Users	Student and other Citizens
Expected Outcomes	Increase in Knowledge and Easily available Learning Resources
Potential Impact	Helpful to students and other citizens

Our Vision:

-> As this is our first hackathon, we collectively decided to go with something that'd prove to be simple, yet a significant solution to problems in the public domain.

-> Our primary objective is to make the most of this opportunity to LEARN, whatever the outcome may be. Keeping the hunger to learn at the first priority, we're trying to give it our best shot & hopefully secure a rank.

-> We aim to create a solution that satisfies as well as does the problem statement justice. Additional functionalities are also planned in order to make it scalable.

Existing Innovation-Technology To Address:

-> In today's world, there's hardly any field that's untouched by technology, and a technical solution to most of the problems one can think of is apparently available. But this doesn't mean there's a solution to every problem, as there are many more factors that determine this.

-> There are a lot of problems that are often overlooked due to other bigger or higher priority problems are present at a given time period. Also, accessibility is another big issue here. And there's no perfect world anyway where there is truly a solution to each & every problem.

-> Existing technology regarding our problem statement does a pretty good job indeed.. the likenesses of Amazon Kindle, World Digital Library and Google Books come to mind. Though there's one common thing lacking in context of our problem statement, they're all general purpose E-Libraries.

-> Our solution proposal combines general purpose ideas with those dedicated for students as well. Our solution model is helpful, accessible and can be scaled up to industry level, thus solving a lot of the aforementioned issues.

Solution Proposal (Approach) & Justification:

Overview:

-> The challenge description mentions an app/portal as an alternative approach to access a library & everything it has to offer, with added accessibility in order to enable everyone to enjoy its benefits and gain as well as share knowledge.

-> Our solution proposal includes a mobile application, since a handheld mobile device is the most accessible, popular & widely owned device in today's world.

- The recent COVID-19 pandemic has shown us the boon technology is to mankind, handheld devices playing a major role in doing so.

- The educational field, amongst others, is among the fields to make the most of it. Teachers as well as students from far & wide were able to connect online via the internet to gain & share knowledge in an appropriate environment, despite the unfortunate circumstances across the globe.

- Our aim is to use this very technology combined with our intellect in order bring innovation to the growing educational needs of the population, and make it even more accessible to the extent where it's available to each & every person, even if the person isn't tech savvy. After all, everyone has a right to education!

Features:

-> Having analyzed the problem statement as well as existing solutions thoroughly, we have planned the following features for our app, which include some planned for future scalability, due to the short-term nature of the hackathon:

- **Basic Library Structure:** All the basic stuff an e-library needs to have, such as an interface to surf & search for books of one's interests, the ability to issue and/or buy books, etc.

- **Vast Library:** Offering a vast range of knowledge sources is a must-have for a library, which will enable the users to access any & every kind of

knowledge they wish to gain. Also providing PYQs as an additional feature would further help out students preparing for various competitive examinations.

- **Attractive Interface:** A good solution needs a good enough interface in order to really stand out! An attractive & responsive UI/UX implementation will enable the users to comprehend & navigate the application better & reap its benefits, plus make the experience enjoyable!

- **Accounts:** The ability to register, maintain & operate accounts from within the application will enable a hassle-free, personalized experience.

- **Levelling System:** Enabling users to level up based on their interaction with the app will encourage engagement & knowledge sharing.

- **Royalty/Loyalty Points System:** Rewarding users for interacting with the application alongside leveling up, will further help increase engagement as well as make it attractive & enjoyable, enabling people to be encouraged to share knowledge.

- **Categories, Browsing, Search, Filters:** Navigating with ease is a major factor which determines engagement. Providing easy browsing with proper category structure as well as the ability to search & filter the search results will further increase ease of access.

- **Transaction/Issuing Subsystem:** Enabling the users to issue and/or purchase books requires a secure transaction subsystem.

- **Reviews/Feedback System:** A review/feedback system would enable users to share knowledge as well as express their thoughts/suggestions about various resources, in turn enabling a user-maintained ecosystem where people will be able to access & utilize the resources best suited to their needs.

- **FAQs & Support Page, About Page:** Support section providing easy troubleshooting assistance and an about page to provide additional details about the application itself.

- **Screentime Pop-Up:** Throwing up a pop-up reminder after a certain safe period of using the application will ensure health & safety of the users.

- **Performance Logging:** Logging performance will enable us to monitor the performance of our application as well as making it easy to debug.

- **Marketplace:** Providing a separate platform in the future in order for users to sell off/exchange/donate material they no longer need would highly promote easy sharing of knowledge.

- **Forum:** A platform for discussion in the future, enabling the users to express their themselves would encourage socializing as well as sharing of knowledge.

- **Trending Showcase & Personalized Suggestions:** To be used as a future implementation possibility to promote scalability, Machine Learning based personalized suggestions and trending showcase of books would enable users to discover new horizons & share the knowledge they have to offer.

- **Chatbot:** Also to be used as a future implementation possibility, a ML based support chatbot would exponentially increase the accessibility of the application, as users from technical as well as non-technical knowledge would be able to get personalized help with their queries.

Challenges & Strategy:

Challenges:

-> Nothing's perfect in the practical world, so naturally, our implementation is bound to face some challenges.

-> Firstly, our team doesn't have much prior experience of this level of development to be frank, but we're enthusiastic & positive about learning & growing. We're actively working together to give it our best shot.

-> Choosing appropriate technologies to use amongst the plethora of options is another cumbersome task. There are many issues regarding this aspect such as compatibility, efficiency, etc.

-> Co-ordination is must. Having good co-ordination & co-operation despite individual schedules & other life aspects is a challenge, but surely pays off.

Strategy:

-> As mentioned earlier in the overview, our top priority being utilizing the opportunity to learn & grow, we're trying our best to implement as much as possible in the given time frame, without overburdening the members of the team. Maintaining a healthy & professional working environment is as important as the work itself.

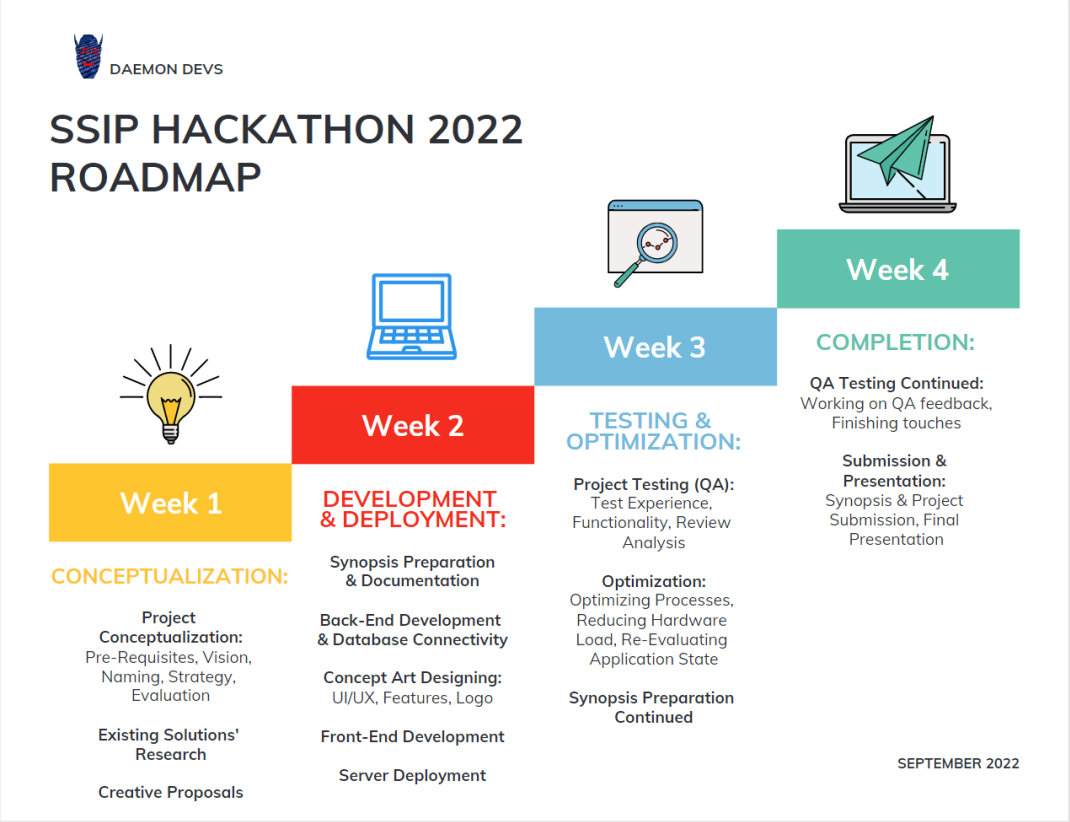
Tools & Technology To Be Used:

-> We've analyzed, mutually discussed & finalized the following tools & technology to use in order to forge our solution:

- **Front-End Development - Flutter:** One of the SDKs growing exponentially in popularity these days, and with good reason. Flutter will enable us to create beautiful & responsive UI/UX with the added functionality of multi-platform support originating from a single codebase as a cherry on top.
- **Back-End/Server-Side Development – Firebase/Supabase with Python & Java:** With the combined knowledge & experience of two of the most popular languages today, Python & Java, we'll implement the back-end for the application, enabling us to create complex logic in order to provide a seamless back-end to front-end connection. Firebase with its various features or Supabase as the SQL alternative to the NoSQL firebase structure, will further help us achieve this.
- **Database Connectivity & Server Hosting – Firebase with SQLite:** The various awesome stuff offered by firebase with its real-time database amongst other useful features like cloud Firestore, authentication, etc is an effective way to implement database connectivity as well as server deployment. SQLite will help create a local SQL database to work alongside the NoSQL Firebase counterpart.

Road Map:

-> Here's our roadmap that's being actively followed:



-> Week 1 objectives have been successfully completed. We're currently at Week 2 phase, working actively in order to complete everything within the decided time-frame.

Team Details & Internal Working Strategy:

Team Skillset:

-> Harsh Awasthi:

-Knowledge/Expertise:

- Programming/Scripting: C, Python, Dart, Flutter, SQL, HTML-CSS
- Graphic Designing: Adobe Suite, Vector arts
- Content Writing/Editing

-Experience:

- Have the most experience with Python & SQL.

- Developed a small-scale, local scalable full-stack project completely based on Python & SQL alone as the sole developer.
- Lead graphic designer in TEDxSilverOakUniversity 2022 event

-> Kathan Jani:

-Knowledge/Expertise:

- Programming/Scripting: C, Java, HTML-CSS
- Graphic Designing: Adobe Premiere Pro, Photoshop
- Content Writing/Editing

-Experience:

- Java Enthusiast.
- Self-taught graphic designer/editor.

-> Ayush Jha:

-Knowledge/Expertise:

- Programming/Scripting: C, Java, HTML-CSS
- Graphic Designing: Photoshop, Vector Arts

-Experience:

- Java Enthusiast.
- Lead vector artist in TEDxSilverOakUniversity 2022 event

-> Priyanka Javani:

-Knowledge/Expertise:

- Programming/Scripting: C, HTML-CSS
- Concept Art expertise
- Content Writing/Editing expert

-Experience:

- Excellent Concept Artist

- Lead content writer/curator in TEDxSilverOakUniversity 2022 event

-> Rushi Prajapati:

-Knowledge/Expertise:

- Programming/Scripting: C, HTML-CSS

- Graphic Designing: Adobe After Effects, Photoshop, 3D Modeling

-Experience:

- Excellent Concept Artist

- Lead video editor in TEDxSilverOakUniversity 2022 event

-> Hardik Jain:

-Knowledge/Expertise:

- Programming/Scripting: C, HTML-CSS

- Concept Art

- Content Writing

-Experience:

- Concept Artist

- Programming Enthusiast

Distribution:

-> Given the short time-frame and the first-time hands-on experience, we internally decided that everyone will eventually get to work on every aspect of the

project over the duration of the development, though lead roles have been assigned.

-> We've mutually discussed & agreed upon the following distribution strategy based on our individual unique skillsets:

- **Concept Artists & Designers:** Conceptualizers & design enthusiasts, brainstorming over how different aspects of the application should look visually in order to appeal the users as well as satisfy the requirements.
    - **Priyanka Javani – *Lead Artist***
    - **Rushit Prajapati – *Lead Artist***
    - **Hardik Jain – *Lead Artist***
    - **Ayush Jha – *Co-Artist***
    - **Harsh Awasthi – *Co-Conceptualizer***
    - **Kathan Jani – *Co-Conceptualizer***

- **Back-End & Front-End Developers:** Programming enthusiasts, actively working on implementation of the concept art as well as back-end aspect envisioned for our project in order to provide as much functionality to the application as possible.
    - **Harsh Awasthi – *Lead Developer***
    - **Kathan Jani – *Lead Developer***
    - **Ayush Jha – *Lead Developer***
    - **Priyanka Javani – *Co-Developer***
    - **Hardik Jain – *Co-Developer***

- **Content Writers/Editors:** Responsible for all the content writing & documentation work, enabling a hassle-free, well-structured development phase that is well documented. Also lead editors for the synopsis, ensuring the best possible language is used in order to express our ambitions.
    - **Priyanka Javani – *Lead Editor***
    - **Harsh Awasthi – *Lead Editor***
    - **Kathan Jani – *Lead Editor***

- **Hardik Jain – Co-Editor**

Work Done Till Date:

-> We rolled up our sleeves and have been hard at work for the past couple of weeks in a unified effort at doing justice to our proposed solution.

-> We've naturally had our issues initially, but we quickly picked up pace and have managed to successfully implement a large part of the solution already.

-> Here's what we've done so far:

- Conceptualization : Conceptualizing everything from the ground-up is no easy task! Our skilled Concept Artists managed to provide the developers with awesome artwork to base off the development on.

- Development Strategy : We collectively researched & chose appropriate development technologies & methods from the plethora of options available.

- Front-End Development (70% Done) : 70% of the front-end aspect has been implemented using Flutter.

- Back-End Development (50% Done) : We've designed all the necessary back-end algorithms and have brainstormed over implementation. We're currently halfway through this aspect.

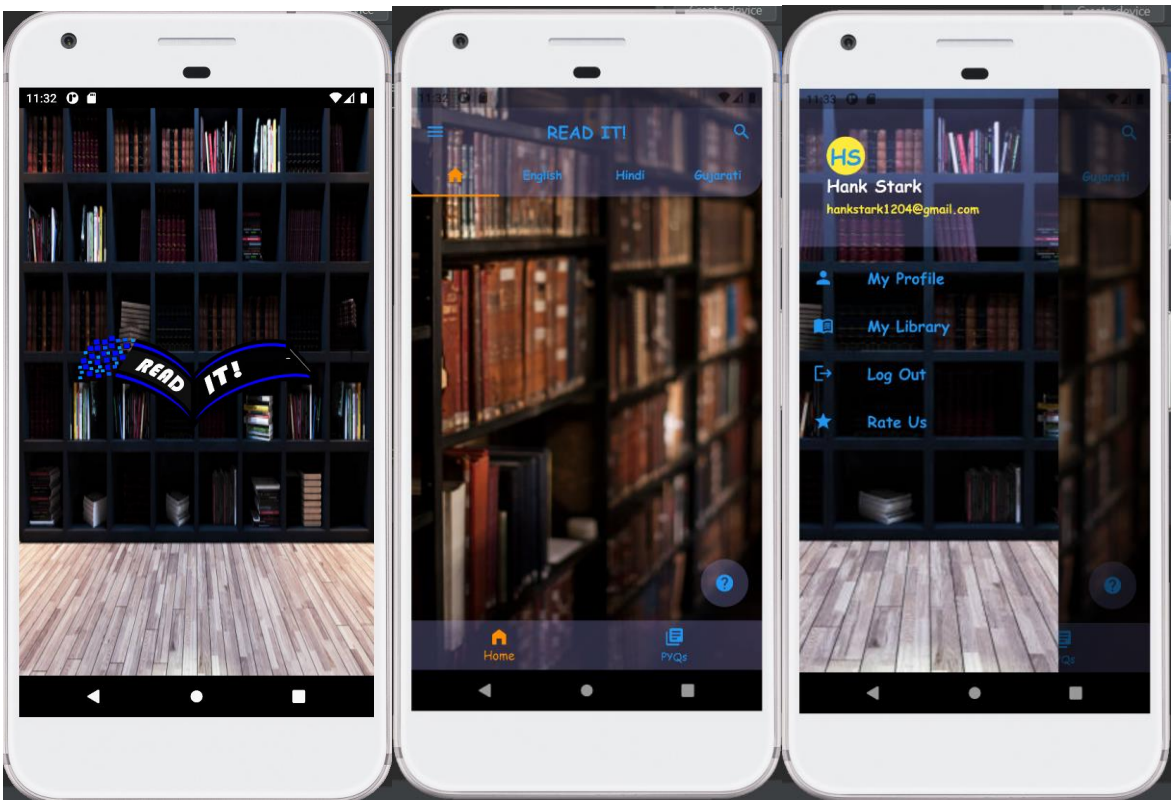
- Testing & Optimization : We're actively testing & optimizing our implemented solution aspects in order to boost its efficiency.

- Server Deployment: We're making use of technologies such as SQLite for local database requirements as well as Cloud Based Server technologies such as Firebase/Supabase. Currently we're refining our strategy in this aspect.

Some Concept Arts & Implementation Screenshots (Under Development):

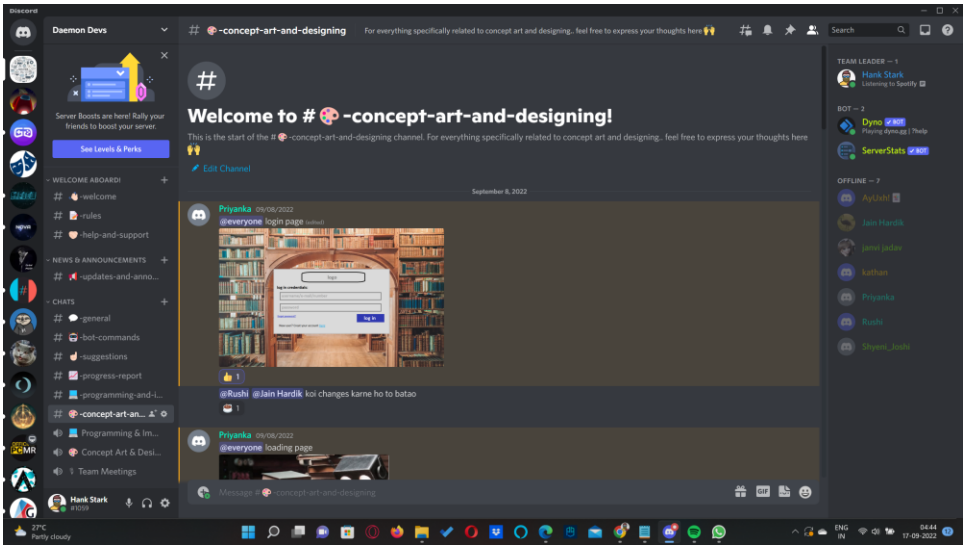
Concept Arts:

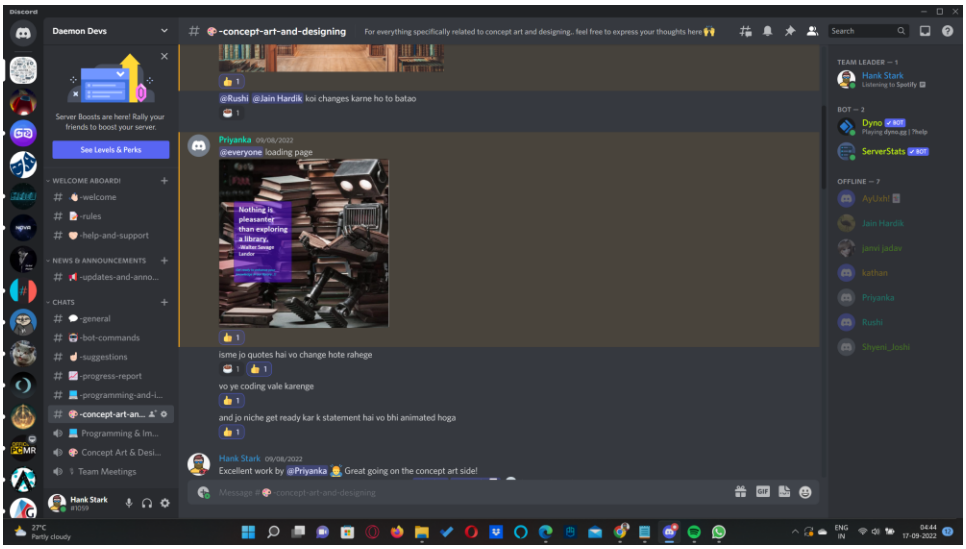
Screenshots:

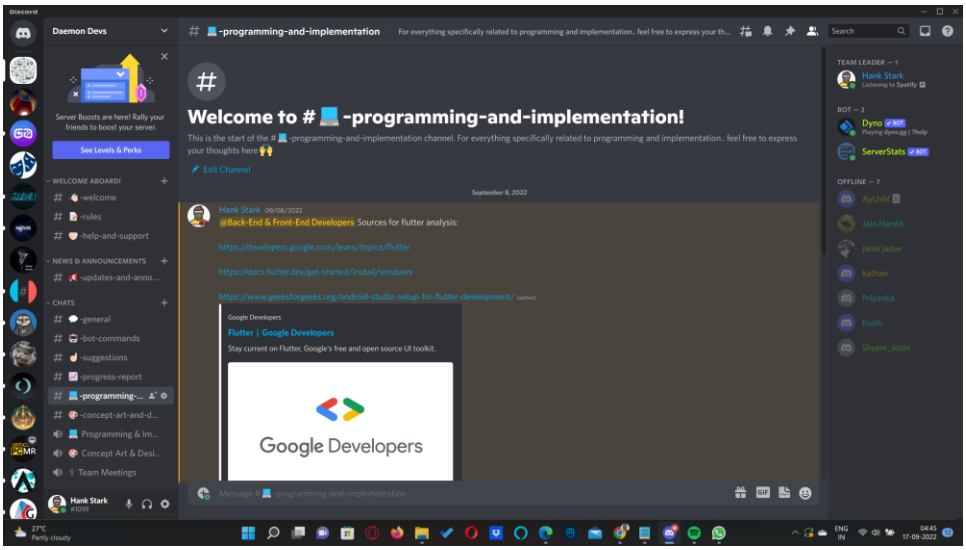


Internal Strategy & Environment:

-> All communication & co-ordination is carried out on a dedicated Discord server for a centralized & convenient platform to streamline development. Some screenshots are attached below:




Daemon Devs
-concept-art-and-designing
For everything specifically related to concept art and designing.. feel free to express your thoughts here
@Rushi @Jain Hardik koi changes karne ho to batao
Priyanka 09/08/2022
@everyone loading page
Nothing is pleasanter than exploring a library.
isme jo quotes hai vo change hote rahege
vo ye coding vale karenge
and jo niche get ready kar k statement hai vo bhi animated hoga
Hank Stark 09/08/2022
Excellent work by @Priyanka Great going on the concept art side!
Message #-concept-art-and-designing
Server Boosts are here! Rally your friends to boost your server.
See Levels & Perks
TEAM LEADER — 1
Hank Stark
BOT — 2
Dyno
ServerStats
OFFLINE — 7


Daemon Devs
-programming-and-implementation
For everything specifically related to programming and implementation.. feel free to express your th...
Welcome to # -programming-and-implementation!
This is the start of the # -programming-and-implementation channel. For everything specifically related to programming and implementation.. feel free to express your thoughts here
Edit Channel
September 8, 2022
Hank Stark 09/08/2022
@Back-End & Front-End Developers Sources for flutter analysis:
https://developers.google.com/learn/topics/flutter
https://docs.flutter.dev/get-started/install/windows
https://www.geeksforgeeks.org/android-studio-setup-for-flutter-development/
Google Developers
Flutter | Google Developers
Stay current on Flutter, Google's free and open source UI toolkit.
Google Developers
Message #-programming-and-implementation
Server Boosts are here! Rally your friends to boost your server.
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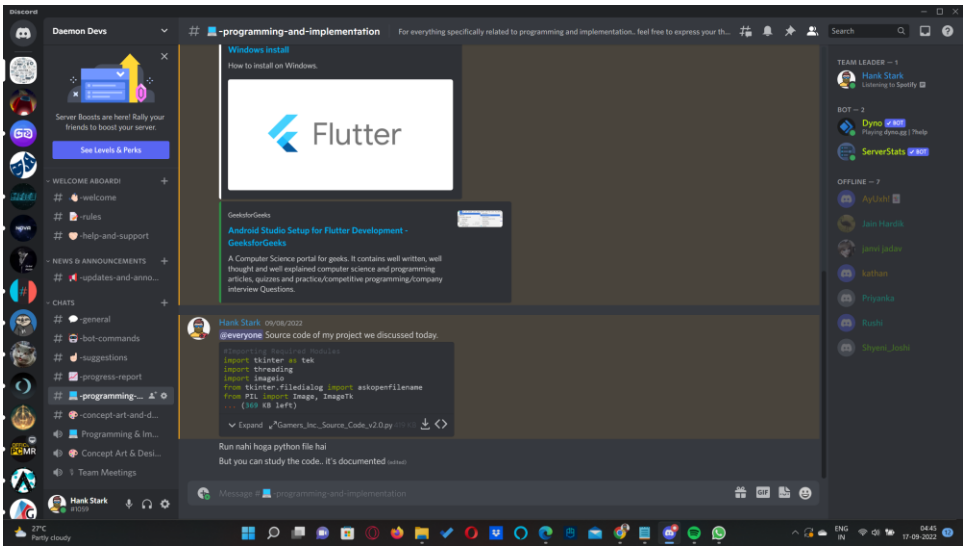
Daemon Devs
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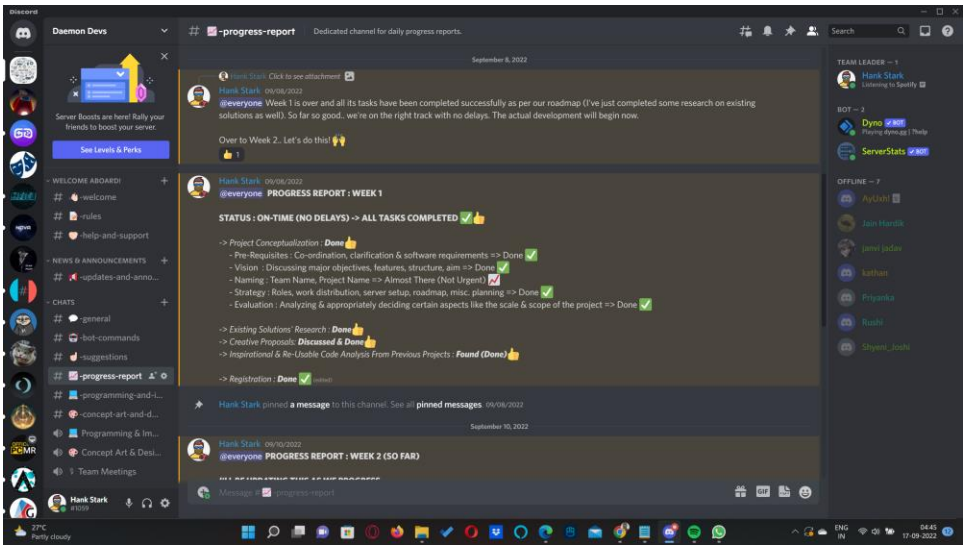
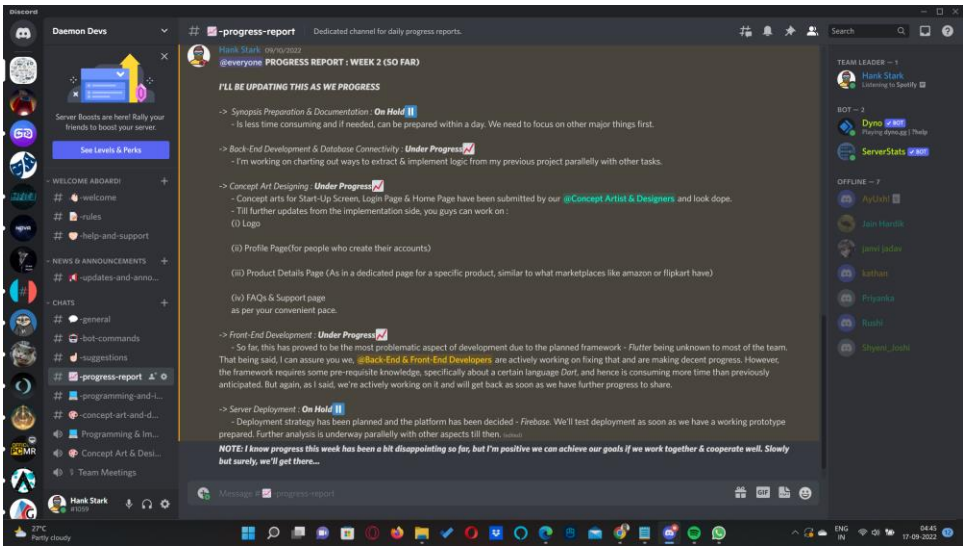
For everything specifically related to programming and implementation.. feel free to express your th...
Windows install
How to install on Windows.
Flutter
GeeksforGeeks
Android Studio Setup for Flutter Development - GeeksforGeeks
A Computer Science portal for geeks. It contains well written, well thought and well explained computer science and programming articles, quizzes and practice/competitive programming/company interview Questions.
Hank Stark 09/08/2022
@everyone Source code of my project we discussed today.
import tkinter as tk
import threading
import imagela
from tkinter.filedialog import askopenfilename
from PIL import Image, ImageTk
(369 KB left)
Expand
Run nahi hoga python file hai
But you can study the code.. it's documented
Message #-programming-and-implementation
Server Boosts are here! Rally your friends to boost your server.
See Levels & Perks
TEAM LEADER — 1
Hank Stark
BOT — 2
Dyno
ServerStats
OFFLINE — 7





Outcome & Conclusion:

-> All our hard work & strategy will pay off in a way that's simple to implement, yet highly useful for a lot of people across the nation.

-> The effective & appropriate use of development technologies will enable us to create an efficient & useful solution that completely justifies the problem statement.

-> Mutual understanding, co-operation & co-ordination despite every member's busy schedule & personal life enables us to prioritize our goals efficiently and work on them with a solid strategy.

-> Our solution is a scalable prototype with various useful features discussed earlier in the report. It makes use of advanced technologies like Python, Flutter, Database Connectivity & Server Deployment in order to present a scalable model that is easy to use for the targeted users as well as simple to scale up to industrial level for business purposes.