Task 1 : Case Study

A. IITGN's Official Website (https://iitgn.ac.in)

1. Performance Analysis:

First Contentful paint: 4 sec
The first content full paint takes about 4 seconds which is considered good but it can be further improved by using preloaders. using preloaders will help the website get contentful paint in one or two second

Website uses a valid SHA-256 certificate which makes it secure to XScript attacks.

Images are hosted as PNG and Not .webp: All the images are hosted in old generation formats which are not optimized for web. all the images should be in webp format as it reduces the size and also makes the browser easier to render.

Self hosting CSS and JavaScript frameworks should be avoided: All the CSS and JavaScript libraries are self hosted on our IITGN server and Overall it takes at least 6 seconds to load. If we use a CDN hosted library, the loading time becomes much less as some time those libraries are already cached in our Browser.

Static assets are being served without effective Cache-policy: Static content of about 4 Mb is being served without any cash policy which means it will be loaded every time we visit the website from the server

Website is SEO optimized: All SEO friendly measures have been taken while designing the website such as having alt attribute to <img> tags and texts are written using proper heading and subheading tags.

It doesn't use any modern JS library. the website is very interactive but it doesn't use any modern JavaScript libraries such as React or Angular.

Uses PHP Hosting.

Website is Fully Responsive: It uses Bootstrap Breakpoints ie. 576px, 768px, 1025px and 1280px

2. UX Evaluation:

Easy Navigation with Dropdown: The website is easy to navigate and the information is well-organized. The main navigation menu provides quick access to all of the important sections of the website. The sub-navigation menus are located below the main navigation bar and they provide more detailed information about each section.

Hero Section : The homepage has a large banner image that showcases the institute's campus and facilities. The website also has a search bar that can be used to find specific information.
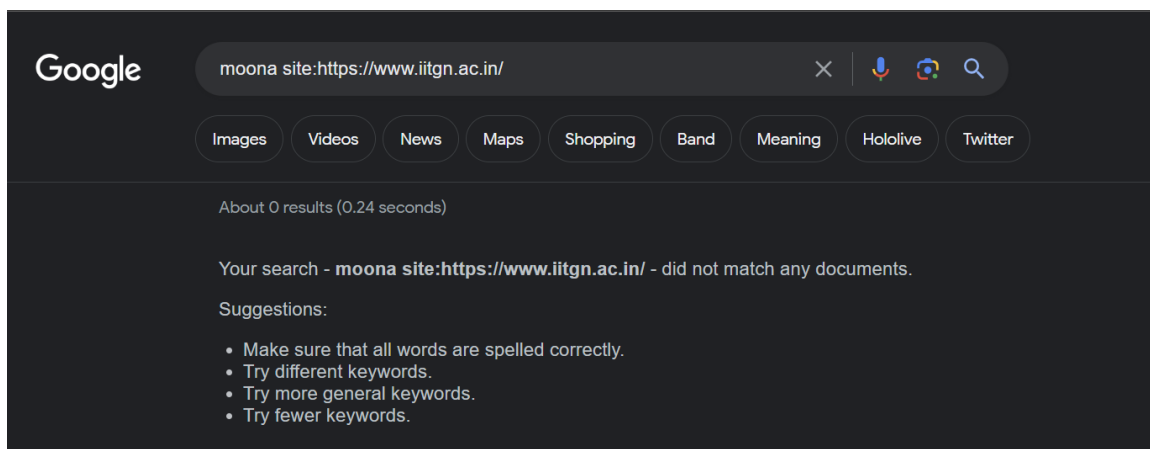
Cons:
Website does not use Accessibility features for Visually challenged visitors such as High Contrast themes. Almost all other IITs' official websites have this feature.
.

Required Improvements:
1. **Add more white space to the website**
2. **Improve the Search bar:** The search bar uses Google Site Search but does not work properly.
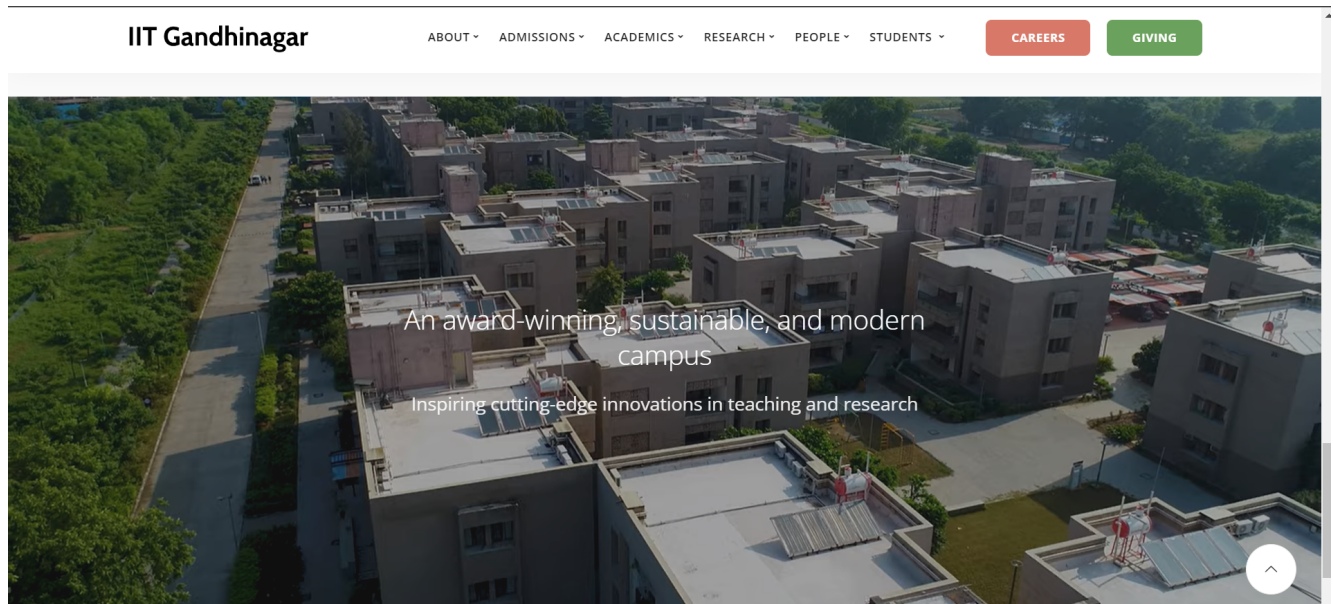   For Example, **Moona Not Found!**

3. UI Evaluation

Good NavBar: The website is easy to use. The main navigation bar is easy to find and the sub-navigation menus are helpful for finding more detailed information.

The website is accessible to people with disabilities. The website has a high contrast mode that makes the text easier to read for people with vision impairments. The website also has a text-to-speech feature that can be used by people with hearing impairments.

Visuals are Awesome: The website is visually appealing. The use of color and imagery is effective in creating a positive effect.

Readability: The text on the website is easy to read. The font size is large enough and the text is well-formatted.

4. Tech Stack Analysis

Content Management System
- ➔ Drupal 7

Web Server

➔ Apache 2.4.39

Javascript Frameworks

➔ jQuery 1.7.1 and HoverIntent JS

Analytics

➔ Google Analytics UA

Programming Language

➔ PHP 5.4.45

B. IMDb Website (https://www.imdb.com/)

1. Performance Analysis:

First Contentful paint: 0.8 sec:
The first content full paint takes about 0.8 seconds which is awesome.

Website uses a valid SHA-256 SSL certificate for security.

It uses Amazon Cloudfront: It is an state of the art delivery mechanism developed by amazon which has low latency and high transfer speed.

Does not uses gzip Compression for texts

Render blocking files should be served by JS using differ.

Some files have no Cache_Policy: It may be due to frequent updation of those js scripts.

It uses React.

2. UX Evaluation:

Overall design: The IMDb website is well-designed and easy to use. The homepage is clean and uncluttered, and the navigation is straightforward.

Search functionality: The IMDb search functionality is excellent. Users can search for movies, TV shows, actors, and directors by name, keyword, or genre. **Search works Excellent.**

Community features: IMDb has a number of community features, such as forums, message boards, and user reviews.

Login with Google, Apple Amazon, etc

3. UI Evaluation

Overall design: The IMDb website has a clean and modern design

Typography: The typography on the IMDb website is clear and easy to read. The fonts are all sans-serif.

Images: The images on the IMDb website are high-quality and relevant to the content.

Buttons: The buttons on the IMDb website are clear and easy to click. They follow amazon's typical UI of Yellowish Background.

Improvements:

Add Option for users to Customize look and feel as their wish.

4. Tech Stack Analysis

Analytics
comScore
Scorecardresearch

CDN
Amazon Cloudfront

Javascript Libraries
React

Server
Apache on Linux

C. InsIIT App

1. Performance Analysis:

App load time is good: As The app is based on flutter,a framework, the loading speed of the app is quite good because it is not built natively it all depends on the packages and imports whether the app will load fast or not.

The UI of the app is appealing: the UI is quite good according to the UI standards when it was first released. but now there have been many improvements in field of UI which needs to be incorporated and implemented. like we have material you which is an awesome design concept by Google and it also adapt to the preferences of devices

App Supports 60fps: One of the main concepts of flutter is to make apps Run smoothly and that's why flutter out of the box uses 60 FPS for the apps, that's why the apps feels very smooth.

Backend of the App: The app uses Google sheet as its back end. Everything is based on Google sheets. in the app we use tabletop.js to fetch data from Google sheet for mess menu which is nowadays deprecated and in near future the app may stop working if we don't implement a proper system.

The app needs to be migrated to Flutter 3: when the app was developed the developers used flutter 1.0 which was the latest at that time. It may be soon that FlutterSDK stops supporting v1. so we need to migrate.

Guest mode is a good concept: having a guest mode can benefit all the visitors of our college to get accurate information and help which is not the case with many other IITs' apps
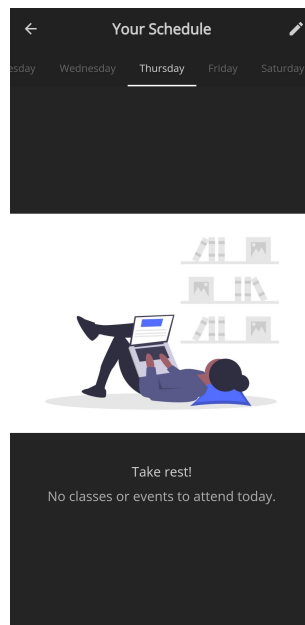
2. UX Evaluation:

The User experience of the app is very good in all aspects like navigation and performance.

3. UI Evaluation:

The current UI of the app is great but due to many innovations in design and graphics Those designs need to be implemented in order to improve User experience. For example, the homepage mess menu can be revamped.

Dark Mode does not changes images

Overall Ui of the app is Nice

4. Tech Stacks

Frontend - Flutter

Backend -
➔ Node.js (Deployed on IITGN Servers)
➔ MongoDb (Atlas)
➔ Google Sheets(For all Data Purposes)
➔ FireBase for User Authentication and login

Some Ideas for InsIIT

- **A Button to show QR:** A button on Top of homepage from where we can get our Mess QR either through mess.iitgn.ac.in or we can manually store our QR in LocalStorage.
- **Desktop Widgets for Mess Menu:** We can add home screen widget which get auto updated according to time same as it happens in app. But this way we will not have to open apps again and again.
- **Integration with FIITGN:** With a dietitian in our Medical center, many students want to keep watch on their calorie consumptions
- **Build an API system for all Data that is shown on app:** Having an API system can help aspiring developers to make their own **insIIT**. When I decided to work on the above ideas, I could not get **Google Sheet KEY** and finally I could not build it and at last I left it.

  So, Having Our Own API System for these data can help us elevate from google dependencies. We can develop APIs in FastAPI easily as most of the new students are now proficient with Python from their first year.

Anmol Kumar