

Website of Association of Computing Machinery for IT Department

Minor Project Report

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Abstract

This project deals with the Front end development of a website of ACM society. The idea for making this website to spread awareness in students about what is ACM local chapter?, its current members and their roles. About Information exchange (upcoming and past events). Making all the information about society available online and gather more members.

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1 INTRODUCTION

1.1 Introduction to Organization

Guru Nanak Dev Engineering College was established by the Nankana Sahib Education Trust. NSET was founded in memory of the most sacred temple of Nankana Sahib, birth place of Guru Nanak Dev Ji. Shiromani Gurudwara Prabandhak Committee, Amritsar, a premier organization of universal brotherhood, was the main force behind the mission of "Removal of Economic Backwardness through Technology". With this mission, a Polytechnic was started in 1953 and Guru Nanak Dev Engineering College was established in 1956. The Trust deed was registered on 24th February 1953 with a commitment by The Nankana Sahib Education Trust to uplift the vast weaker section of Indian polity comprising Rural India by admitting 70% students every year from Rural Areas. This commitment was made to the nation on 8th April, 1956. The day when foundation stone of the College Building was laid by Late Dr. Rajendra Prasad Ji, the First President of India. Nearly 10,000 graduate and 3000 Post Graduate Engineers have passed out from this college during the last 50 years and are at present successfully employed in India abroad. The college is now ISO 9001-2008 Certified, NBA accredited and have signed MoU with IOWA University [USA] for exchange of students and faculty.

1.2 Introduction to IT Department

This Department was established in 2001. The mission of the Department of Information Technology is to impart high quality post graduate and under-graduate education and carry out leading-edge research in the discipline of Information Technology. The department currently runs academic program leading to the award of B.Tech. in Information Technology degree of Punjab Technical University Jalandhar. The Department has various laboratories equipped with state-of-the-art computing facilities to support the research and teaching activities. A library with a lot of books on Information Technology for the exclusive use of the faculty and students is located in the premises of the Department.

1.3 Introduction to Project

This project is to making a website of ACM (Association Of Computing Machinery) society for Our IT Department. The Association for Computing Machinery (ACM) is a US-based international learned society for computing. The idea is that to provide general awareness about , what is ACM Local Chapter and benefits for joining the society. To get aware about past and upcoming events. Making all information related to society available online. Gather more members

1.4 Project Category

This Project is generally is based on Front End development of website ,which carries a form to register as a new members. Also get updates about past and upcoming events.

1.5 Objectives of Project

1. To make a functional, informative and appealing website
2. To take registrations for upcoming events through website

1.6 Identification of Need

The organisation is starting a new local chapter of ACM society. To aware organisational students to know about ACM society ,what is the local chapter and benefits of joining the society

1.7 Introduction of Basic Concepts

1. **What is ACM society :-** The Association for Computing Machinery (ACM) is a US-based international learned society for computing. It was founded in 1947 and is the world's largest scientific and educational computing society.claiming nearly 100,000 student and professional members as of 2019.
2. **What is Local Chapter :-** Local Chapter means a duly established grouping of Institute members.It means to establish their community in our organisation

The field of project is Front-End-Web Development at first and later Deployment of the web application. The project is to develop a website for ACM local chapter which comes under IT department of GNDEC. Since the initial motive of the site is to bring awareness as to what is ACM and display the names of the students involved in local chapter therefore the main task is to build a SPA (Single Page Application) which is minimal and responsive. The initial idea is to use React with Tailwind for frontend since React is widely known for developing user friendly and fast SPA's. Tailwind is a utility-first CSS framework which makes beautiful UIs with the help of powerful classes that can be used with the tags itself.

2 REQUIREMENT ANALYSIS AND SYSTEM SPECIFICATION

2.1 Feasibility Study

1. **Technical Feasibility :-** The ACM website is a SPA. The main tools and technologies required for developing such a website are:

- HTML
- CSS
- JS
- React
- Tailwind
- Node
- Git
- like vs code
- Web Browser

All of the technologies and tools listed above are open source and free to use. The skill required to use these is manageable. Therefore, the project is also technically feasible..

2. **Economic Feasibility :-** Being a website, it will have an associated hosting cost. Since the perspective users are students of the college only and the website doesn't require any multimedia file transfer between client and server therefore very less bandwidth and storage is required. Due to the above reasons the website can be easily hosted at the server at the campus which is provided by the college hence no cost is associated with hosting of the website. From this it's clear that the project is financially feasible.

3. **Operational Feasibility :-** The project is operationally Feasible as the recommendation system is easily customizable to meet the requirements of a particular product. The project being open source provides horizons to continuous improvements which are beneficial for the product to get the best accurate/optimised recommendations

2.2 Software and Hardware Requirements

HARDWARE REQUIREMENT :

- Recommended Processor : Intel core i3 or above
- Recommended Processor Speed : 2 GHz CPU
- Recommended RAM : 4 GB or Above

SOFTWARE REQUIREMENT :

- Visual Studio Code or any other IDE

- Node Js
- NPM
- Adding path of the dependencies

2.3 Goals of the Requirements

The main purpose of the given work is to enhance skills in web development. Some other goals are given below:-

- Develop Front-End-Development skills
- Able to use frameworks like Tailwind CSS to design UI
- Use React to make website faster reducing the time to switch between pages enabling a smooth user experience
- Able to use Git to track changes and collaborate on a project
- Deploy the website in a production environment

2.4 Functional Requirements

Functional requirements are higher-level features of the system and are subdivided into smaller sub-requirements. Each high-level feature somehow addresses the user's System 7 use case. High-level functions are functions that allow users to do some useful work.

2.5 Non-Functional Requirements

Following are the non-functional requirements for the system.

1. Portability

- The system should be easily transportable.
- Transportation shall require minimal charges and efforts.

2. Scalability and extensibility

System should be open to additional changes and new features. As it's open source so other people and communities should be able to easily modify it.

3. Security requirements

The proposed system should work like a sandboxed software in the operating system hence should not impact negatively or modify other programs on system.

3 SYSTEM DESIGN

3.1 Design Approach

The website was initially designed using prototyping tools like figma keeping the desktop and widescreens in mind and later adopted for viewing on mobile screen. The users view and requirements were kept at first place while designing the website. Although the website is made from scratch during the design phase it drew inspiration from various other ACM local chapter websites combining the best of them.

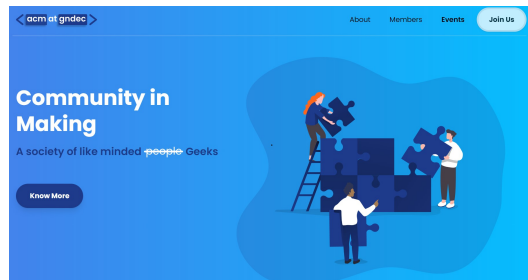


Figure 1: Desktop View

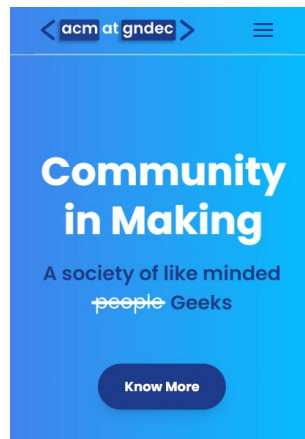


Figure 2: Mobile View

3.2 Detail Design

The website is designed using react components which handles various functions and are utility based reducing load times and code duplication.

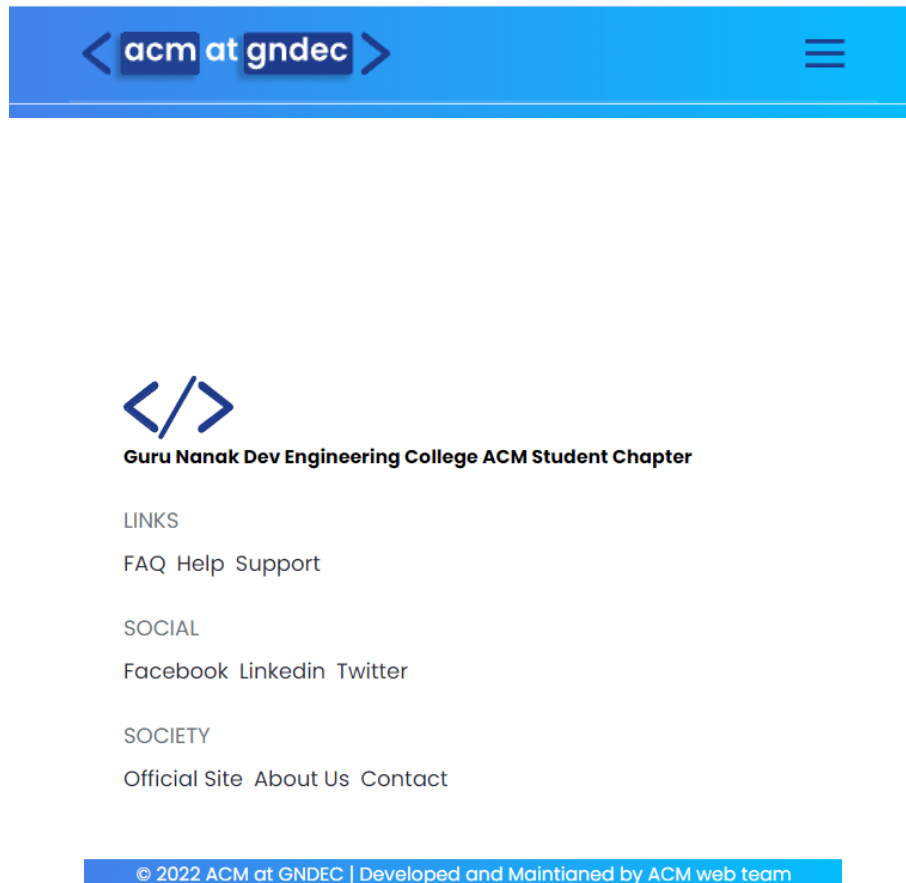


Figure 3: Navbar and Footer Components

The Navbar and Footer component are same for every page and are hence not re-rendered every time a user requests for new page. Both the components are also responsive in nature. Navbar contains the links to other pages whereas the footer contains links to social media handles and official site.



Figure 4: Members card and Event card Components

The members component displays the basic details of the members and also contains the links to their linkedin and github profiles. The event card also gives the basic information about the event like date, venue etc.

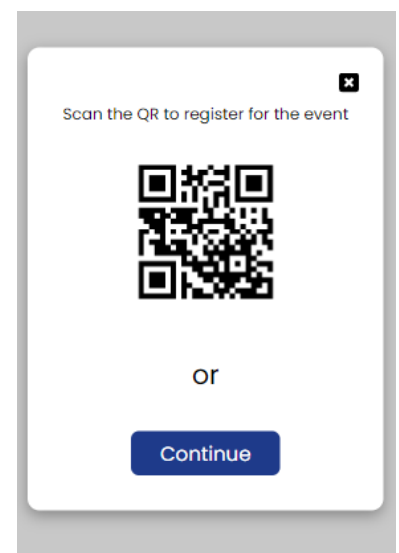
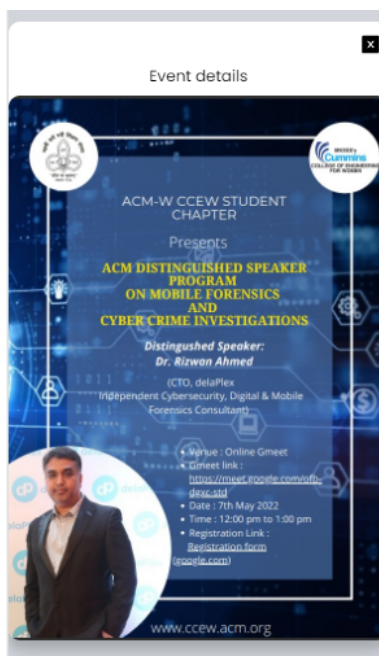


Figure 5: Event Components: event details and register

Under the events card there are two option: View event details and register for the same. The Registration can be done by scanning the QR code which is dynamically generated and redirects to the registration page.

ACM Student
Membership
(Association for
Computing
Machinery) March
2022

You should pay Student
Membership Fee = 475 per year

(College will pay the remaining
amount Yearly Rate: 1250 INR
plus 225 INR India Service Tax =
1475)

Link:-
https://services.acm.org/public/qj/proflevel/proflevel_control.cfm?level=3&country=India&form_type=Student&promo=ACMMSDEPT&pay=DD

akshatsaluia123@gmail.com

Figure 6: Google form integration

Google forms are great for collecting user data. Hence including them within the website makes data collection and organization easy.

3.3 Flow Diagram

The Flow diagram for the proposed work is given below

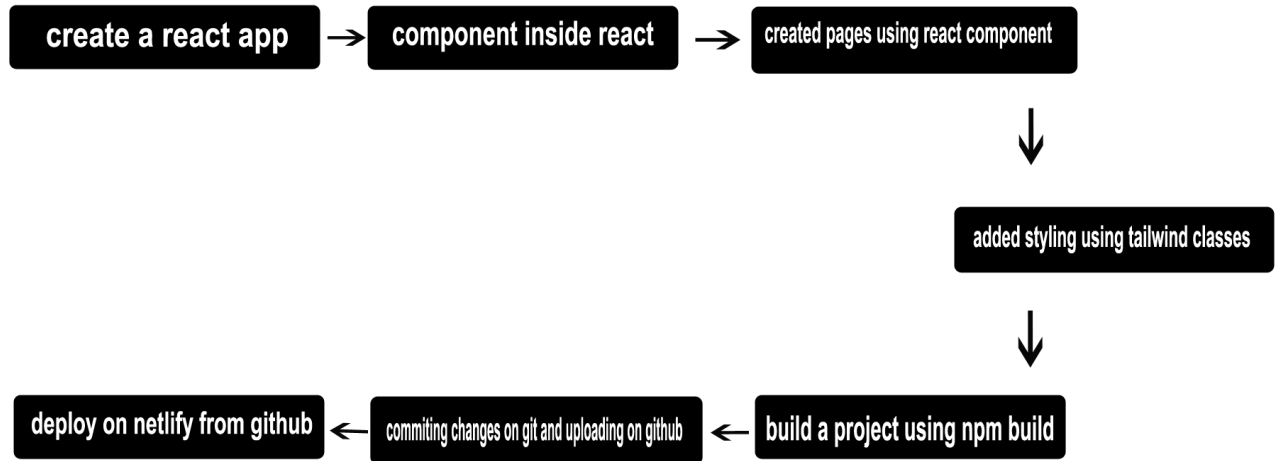


Figure 7: Flow diagram

3.4 Methodology

- create a react app
- component inside react
- created pages using react component
- added styling using tailwind classes
- built a project using npm build
- committing changes on git and uploading on github
- deploy on netlify from github

4 IMPLEMENTATION, TESTING AND MAINTENANCE

4.1 Introduction to Technologies

1. **SPA :-** A single-page application (SPA) is a web application or website that interacts with the user by dynamically rewriting the current web page with new data from the web server, instead of the default method of a web browser loading entire new pages. The goal is faster transitions that make the website feel more like a native app.

In a SPA, a page refresh never occurs; instead, all necessary HTML, JavaScript, and CSS code is either retrieved by the browser with a single page load or the appropriate resources are dynamically loaded and added to the page as necessary, usually in response to user actions.

2. **HTML :-** The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript. HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page.



Figure 8: HTML

3. **CSS :-** Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.



Figure 9: CSS

4. **JSX** :- JSX is a React extension to the JavaScript language syntax which provides a way to structure component rendering using syntax familiar to many developers. It is similar in appearance to HTML.
5. **Java Script** :- JavaScript, often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. Over 97 percent of websites use JavaScript on the client side for web page behavior, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on users' devices.
6. **Tailwind** :- Tailwind CSS is basically a utility-first CSS framework for rapidly building custom user interfaces. It is a highly customizable, low-level CSS framework that gives you all of the building blocks you need to build bespoke designs without any annoying opinionated styles you have to fight to override.



Figure 10: Tailwind CSS

7. **React** :- React is a free and open-source front-end JavaScript library for building user interfaces based on UI components. It is maintained by Meta and a community of individual developers and companies.
React can be used as a base in the development of single-page, mobile, or server-rendered applications with frameworks like Next.js. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

- **Create React App:** Create React App is a comfortable environment for learning React, and is the best way to start building a new single-page application in React. It sets up your development environment so that you can use the latest JavaScript features, provides a nice developer experience, and optimizes your app for production.

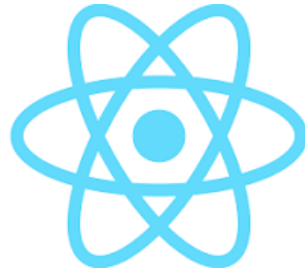


Figure 11: React

8. **Node :-** Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser. Node.js lets developers use JavaScript to write command line tools and for server-side scripting—running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser. Consequently, Node.js represents a "JavaScript everywhere" paradigm,[6] unifying web-application development around a single programming language, rather than different languages for server-side and client-side scripts.



Figure 12: Node.js

4.2 Tools Used

- **VS Code:** Visual Studio Code, also commonly referred to as VS Code, is a source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality.

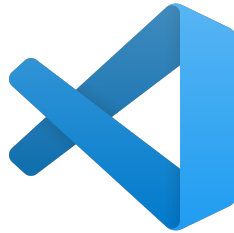


Figure 13: Visual Studio

- **Sublime Text:** Sublime Text is a shareware cross-platform source code editor. It natively supports many programming languages and markup languages. Users can expand its functionality with plugins, typically community-built and maintained under free-software licenses. To facilitate plugins, Sublime Text features a Python API.



Figure 14: Sublime

- **Netlify:** Netlify is a San Francisco-based cloud computing company that offers hosting and serverless backend services for web applications and static websites.

The company provides hosting for websites whose source files are stored in the version control system Git and then generated into static web content files served via a Content Delivery Network. Given the limitations of the purely static model, the company later expanded services to include content management systems, and features of serverless computing to handle websites with interactive features.



Figure 15: Netlify

- **Firefox:** Mozilla Firefox, or simply Firefox, is a free and open-source web browser developed by the Mozilla Foundation and its subsidiary, the Mozilla Corporation. It uses the Gecko rendering engine to display web pages, which implements current and anticipated web standards. In 2017, Firefox began incorporating new technology under the code name Quantum to promote parallelism and a more intuitive user interface.



Figure 16: Firefox-browser

5 RESULTS AND DISCUSSIONS

The result or the view of different pages of the following project is below :-

Homepage :-

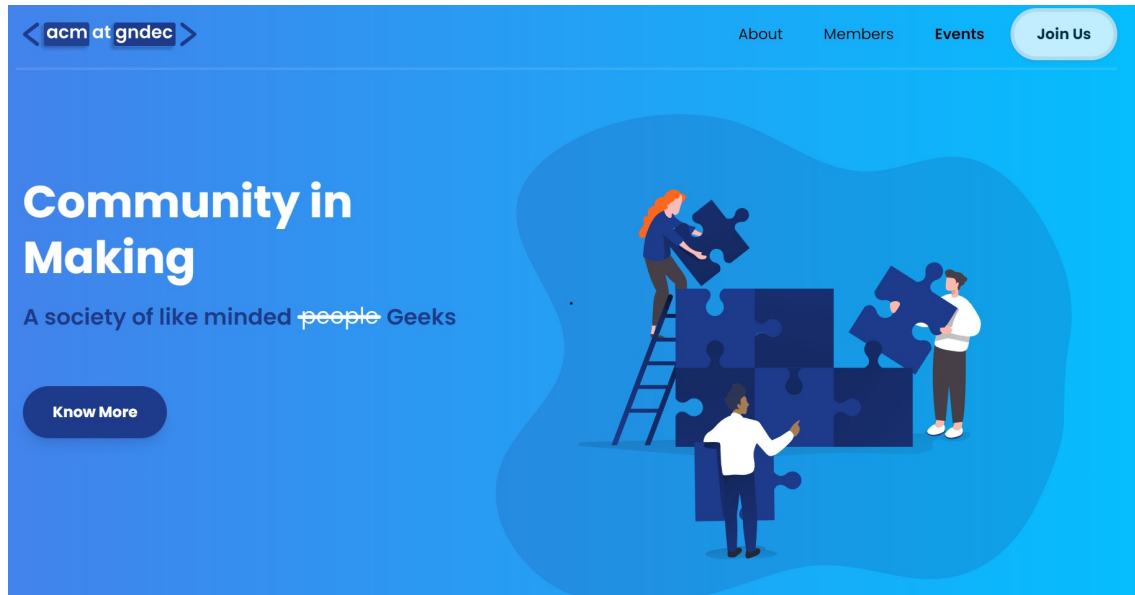


Figure 17: Home page

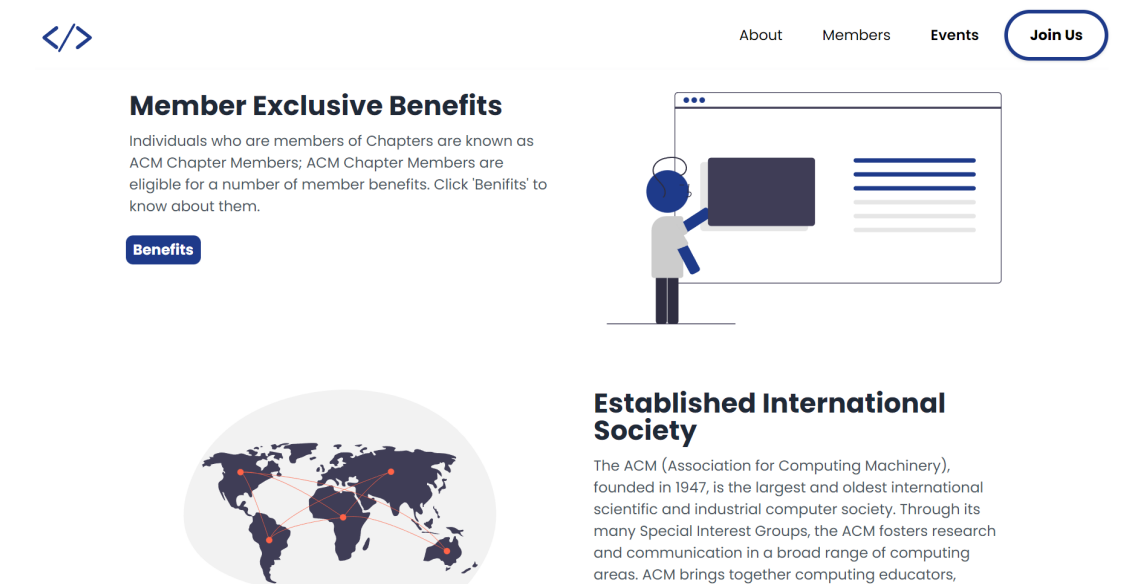


Figure 18: Home page

About Page :-

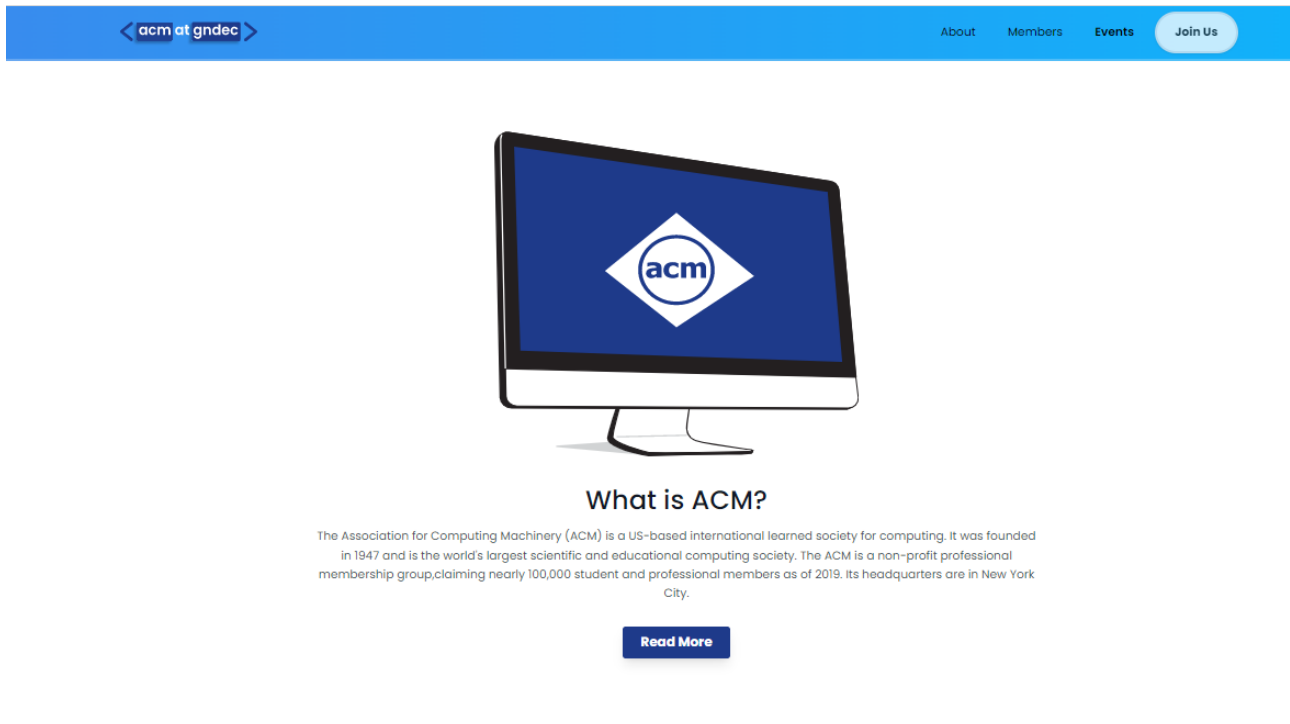


Figure 19: About page

Member page :-

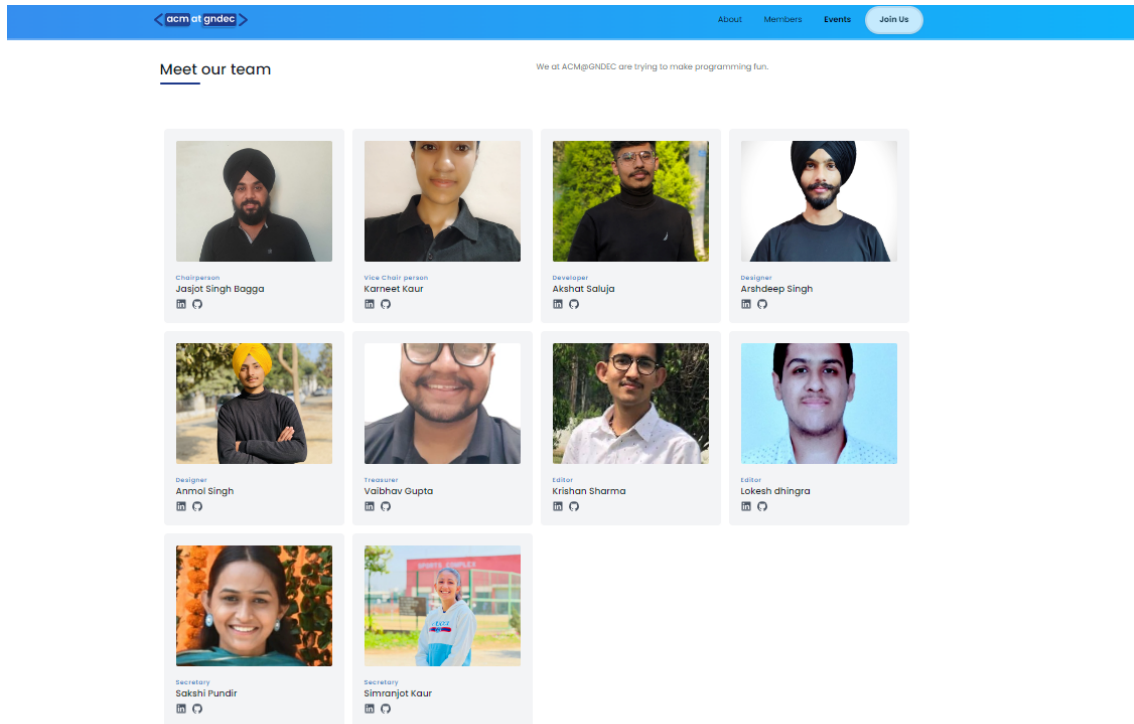


Figure 20: Member page

Events Page :-

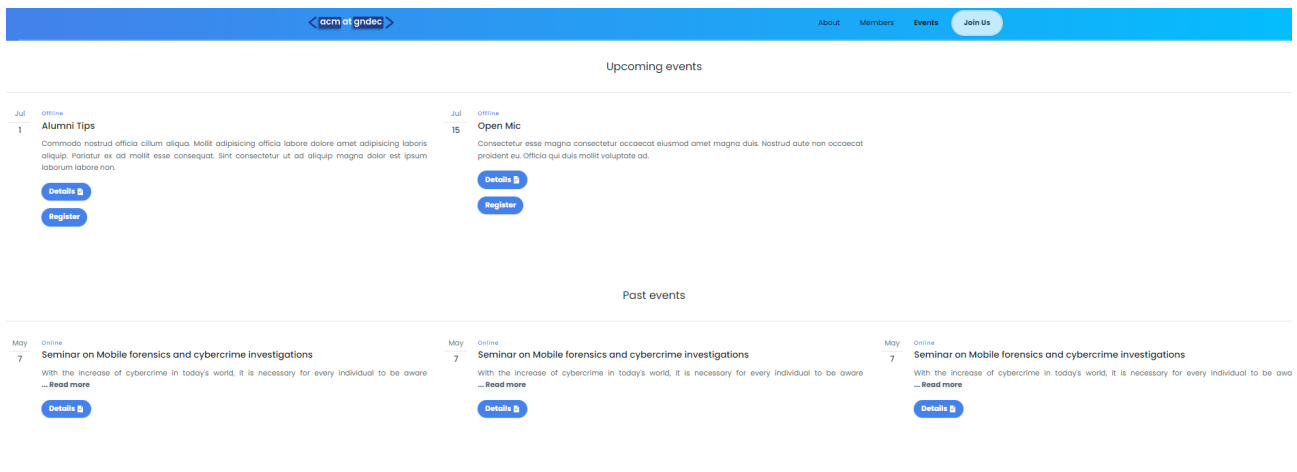


Figure 21: Event page

Join us Page :-

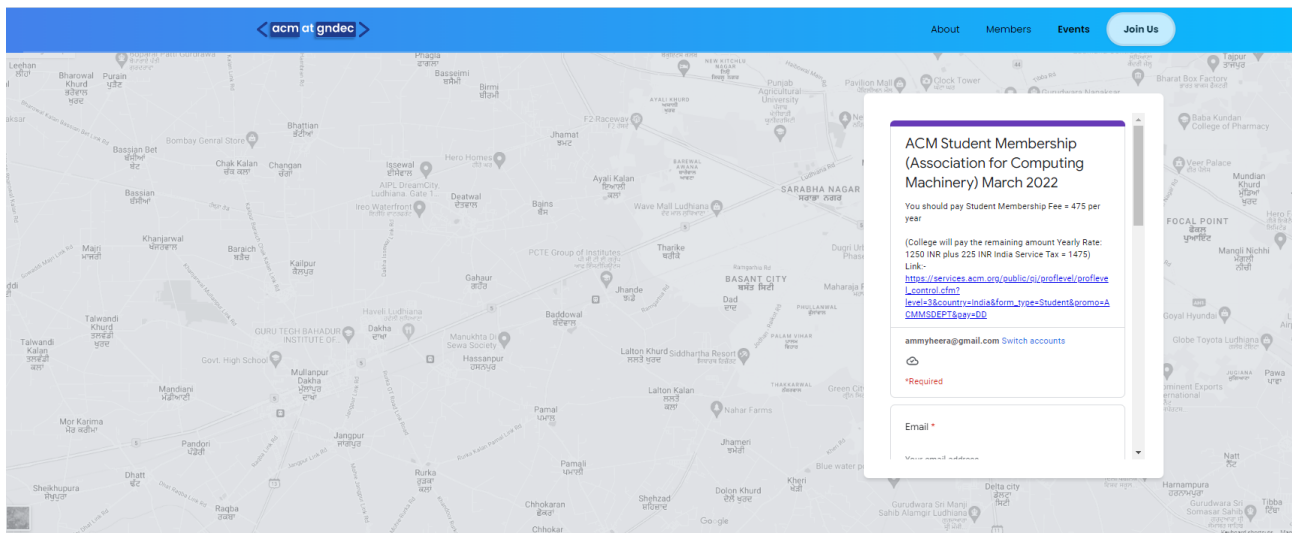


Figure 22: Join us page

6 CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

The website fulfills nearly all the purpose that we can think of from a website of such kind. It educates the students regarding ACM as an organization, local chapter, Benefits of joining, Know about the upcoming events and register for the same etc. Even though the website is complete there is always room for improvement.

6.2 Future Scope

Many more functionalities can be added to the the wesite. Some of these could be Authentication and Admin view for adding new events, Members etc. SEO optimization for increasing the visibility on search engines.

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