GAGAN COLLEGE OF MANAGEMENT &TECHNOLOGY
AGRA ROAD,ALIGARH

PROJECT

SYNOPSIS

OF

Weather Forecasting Web

(Bachelor of Computer Application)
Batch (2023-26)

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Session (2025-26)

OBJECTIVE

The main objective of the Weather App System is to develop a web-based application that provides users with real-time weather updates, forecasts, and climate information for their selected locations. The system allows users to search for cities, view current temperature, humidity, wind speed, and upcoming weather predictions, enabling them to plan their day effectively without relying on external sources.

The objectives of the system are-

- To reduce paperwork and manual checking of weather information.
- Provide real-time, accurate weather data to users by integrating a weather API.
- Improve operational effieciency for students and staff when planning activities.
- Ensure data security and easy accessibility across devices.

This software package can be readily used by non-programming personal avoiding

Human handled chance of error.This project is used by two types of users

i. Students.
ii. Placement Head.

Placement Head can maintain daily updates in details and print reports according to need.Administratoris must be an authorized user.

Application can be upgraded according to user's and administrator's requirements With Little changes.

New features can be added as per requirements.

MODIFICATION AND IMPROVEMENT OVER THE EXISTING IMPLEMENTATION

Present State of Project:

- No institute-specific weather application,users rely on external sources.
- Manual checking and fragmented information lead to delays and incosistent plannig.

After implementation of Project:

- A responsive GUI that works on desktop and mobile.
  According to Project.
- Automated,real-time updates via a weather API and configuarble alerts for server conditions.

SCOPE OF PROJECT

This project has alarge scope as it has thefollowing features which Help in making it easy to use, understand and modify it:

- Display current weather and multi-day forecast for any searched location.

- Provide details metrics:temprature, humidity, wind soeed, and weather icons.

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MainPointsare:-

- Simplified Management of Student Profiles.
- Job Posting.
- Selection Results.
- Real-time Information Publishing through system alerts.

SIGNIFICANCE OF PROJECT

The significance of the project is to providethe following benefits:

- Enables students and staff to paln activities with reliable weather information.
- Promotes a paper-free, eco-friendly approach to sharing weather information within the institute.

TOOLS AND TECHNOLOGY USED

Tools:

- **Visual Studio Code**:Microsoft Visual Studio Code for development.
- That ensures quality code throughout the entire application lifecycle, from design to deployment.
- **Weather API**: - (OpenWeatherMap) for real-time data.

Technologies:

- **Html** :- (HyperText Markup Language) is the standard, foundational markup language used to create and structure web pages, describing their layout through a system of tags and elements.
- **Css**:- Css is cascading stylesheet which is used to give designer look to HTML using the external file.
- **JavaScript**: - Java script is used for client side scripting which can help in using validation on the website and many more other functions.
- **Fetch/Axios**:- For http requests.
- **LocalStorage**:- For storing user preferances and cached data(optional).

IMPLEMENTATION AND TESTING

Implementation modules:

- **UI Modules**:- Search bar, current weather display, hourly/daily forecast panels.
- **API Modules**:- Fetching and parsing weather data.

Testing:

- Unit test core JavaScript functions and API response handling.
- Cross-browser and responsive testing on multiple devices.

DEPLOYMENT AND FUTURE ENHANCEMENTS

Deployment:

- Host on GitHub Pages, Netlify, Or Vercel.
- Secure API keys using environment variables or serverless functions if needed.

Future Enhancements:

- Add charts (e.g., Chart.js) for visualizing temperature and precipitation trends.
- Add **geolocation** to auto-detect user location.

REFERENCES

- OpenWeatherMap API documentation.
- MDN Web Docs – Html, Css, JavaScript references.
- Stack Overflow – development solutions and examples
- W3Schools – quick examples and tutorials.
- Apna College - A comprehensive educational resource for Information Technology students, utilized for learning core programming concepts and industry-relevant skills.