SIX WEEKS SUMMER TRAINING REPORT

on

Full Stack Web Development with NodeJS Master Course

Submitted by:
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Registration Number: 11904808
Program Name: B. Tech (Computer Science & Engineering (Hons.)

Under the Guidance of

Arnav Gupta
(Co-founder of Coding Blocks & Android Developer at Zomato)

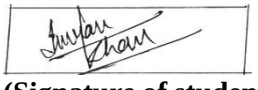
School of Computer Science & Engineering
Lovely Professional University, Phagwara

(June-July 2021)

Annexure-III

DECLARATION

I hereby declare that I have completed my six weeks summer training at **Coding Blocks, New Delhi** from **1 June 2021** to **31 July 2021** under the guidance under the guidance of **Arnav Gupta**. I have declare that I have worked with full dedication during these six weeks of training and my learning outcomes fulfill the requirements of training for the award of degree of **Bachelors of Computer Science and Engineering (Honors)**, Lovely Professional University.

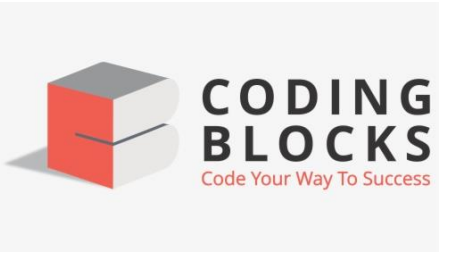


(Signature of student)

Name of Student: Patan Imran Khan

Registration no: 11904808

Date: 1 August 2021



ACKNOWLEDGEMENT

This online course for Web Development by Coding Blocks is deftly designed with an aim to familiarize the young coders with all the know-how of developing the most coherent and professional websites & web-portals. This online Web Development course is a project-based Full Stack web development course with backend in Node.JS.

As a part of these online Web Development classes, the students will start off with the fundamentals of building basic websites and will go on to create more functional and complex portals. The course will start with topics such as HTML, CSS, and JS and then move on to important concepts such as version control, databases, Node.js and advanced topics such as security.

Throughout the course, the students will be mentored in a manner that they develop proficiency with JavaScript for both Front-end as well as back-end use-cases. By the end of this online Web Development training, the students should be equipped with all the essentials to bring into play their full-fledged live web projects such as e-commerce website.

Anyone with a good command of data structures like Stacks, Queues, and Lists, basics of algorithms like sorting, searching, string manipulations and OOP(s) is good to go!

CERTIFICATE

Can be Verified at: https://online.codingblocks.com/app/certificates/CBOL-202282-3d44

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INTRODUCTION

Welcome to **Full Stack Web Development with NodeJS**

This course will be your gateway to learn web development from scratch.
This course will take you from a complete beginner to a **master** in hours! By the way, you do not need to know anything about this course.

We'll be moving rapidly to give you the quickest, yet most thorough website building experience.

In this course, we have created a completely custom HTML learning environment for the first few sections of this course. Each lecture has an HTML page associated with it and has a start state.

With this course, you will improve your Bootstrap experience with HTML5 and CSS3 codes

This course will take you **from a beginner to a more experienced level.** You will learn **HTML5, CSS3, Bootstrap 4, JavaScript, React JS, Angular, NodeJS, and Mongo DB** step by step with **hands-on** examples. And then you will be confident in using **React JS**, and if you ever get stuck, we will be there to help.

Node.js is an open-source, cross-platform, back-end, JavaScript runtime environment that executes JavaScript code outside a web browser. By learning growing web server technology, NodeJS, you can improve your skills, get a new job and you can build powerful, robust web applications.

MongoDB is a cross-platform document-oriented **NoSQL** database program. By using MongoDB, you can build a modern application database for your projects.

TECHNOLOGY LEARNT

BROWSERS

Browsers request information and then they show us in the way we can understand. Think of them as the interpreters of the web. Here are the most popular ones:

Google Chrome- Currently, the most popular browser brought to you by GoogleSafari– Apple's web browser

Firefox– Open-source browser supported by the Mozilla FoundationInternet Explorer – Microsoft's browser

HTML & CSS

HTML is one of the first you should learn. Thanks to HTML, the web browsers know what to showonce they receive the request. If you want to better understand how HTML works, you also need toknow what CSS is.

CSS stands for Cascading Style Sheets and it describes how HTML elements are to be displayed on the screen. If you browse enough tutorials, you'll soon create CSS text effects, page transitions, imagehover effects, and more.

If you're a complete beginner, this Essential HTML & CSS training by James Williamson will helpyou to quickly get started with these technologies.

Web Development Frameworks

Web development frameworks are a starting point of items that a developer can use to avoid doing the simple or mundane tasks, and instead get right to work.

Express.js

Developed in Node.js, Express.js is a web app development network that is great for thosewho need to develop apps and APIs as fast as possible. A lot of great features are providedwith the help of plugins.

This course provides a good insight into the advanced usage of Express.js in combination with MongoDB and Mongoose and shows different ways of deploying an Express app and running it introduction.

JavaScript – used by all web browsers, Meteor, and lots of other frameworks

Protocols

The instructions for how to pass information back and forth between computers and devices arecommonly known as protocols.

HTTP

Thanks to this protocol, each website can get to the browser. The protocol requests the website fromGoogle's server and then receives a response with the HTML, CSS, and JavaScript of the website.

DBMS (Data Base Management System)

A database management system (DBMS) refers to the technology for creating and managing databases. DBMS is a software tool to organize (create, retrieve, update, and manage) data in database. The main aim of a DBMS is to supply a way to store up and retrieve database information that is both convenient and efficient.

REASON FOR CHOOSING THIS TECHNOLOGY

There are some qualities of web development careers, such as job availability and base salary, that make this option a great fit for anyone who wants a secure and high paying job. While good pay and flexibility are historically among some of the biggest contributors to job satisfaction, they aren't the only ones.

Getting appreciated for your work, finding opportunities to learn and grow, and an interest in the job itself are also high-ranking aspects of job satisfaction. Luckily, those also happen to be some of the primary benefits of web development as a career. Here are five reasons to go into web development that might convince you to get started today.

Web Developers Are In-Demand

Today, the online experience is essential to the success of every business and organization. Without a web developer, companies are left using drag-and-drop web builders like Square-space or a WordPress template.

Web Developers Earn a Great Living

Do web developers get paid well? In Indiana, the answer is yes. Though compensation is based on experience like every other industry, the average web developer in Indiana earns $62,901 a year according to Glassdoor. This is around $30 an hour, significantly higher than the Indiana statewide average hourly pay of $16.93 per hour. Getting into web development is one way for Hoosiers to make around double the average salary without necessarily needing to earn an advanced degree.

Web Developers Have Diverse Opportunities

Many web developers have a range of opportunities open to them once they start their careers.Just because you start out in web development doesn't mean you have to stay there.

You may find you love the process of design and delivering on audience expectations for a website. Or, you may get interested in a specific programming language and get

more focusedon giving commands to the computer. Or, you might get the experience and passion to fully develop apps for yourself.

Web Developers Get to Be Creative

Those who choose to stick with web development will appreciate the creativity that they get toexercise on a daily basis. Many prospective students want to know: What does a web developer do?

As a front-end web developer, you'll take web design requirements and discuss with userexperience experts about colors, layout, and features. Then, it's your job to take all that discussion and make it come to life. Back-end developers are more immersed in the background components of a website or web application.

Full-stack web developers tend to do it all, managing both the front-end appearance with UXdesigners and back-end component work to make a website run seamlessly.

Web Developers Have Flexibility

Web development is an industry that offers a flexible way to break into tech. You can workpart-time as a freelancer to earn income through a side hustle while you also nurture other opportunities. You can then grow that freelance work into your own business and work solobuilding web pages.

Or you can join an established team and work with others to collaborate toward something great. Plus, the more programming languages you learn and skills you develop, the more thatflexibility ultimately increases.

PROFILE OF THE PROBLEM

There's no clear path. You want to extend a warm welcome to your visitors. Give them an easy way in and through. Too much competition for attention is a turn off. When you provide too many options, the functional result is no options.

1. **Outdated design**. Your site was state of the art in 2009. It's got a header, a couple of sidebars, and a big chunk of information running down the centre. Guess what? It lookslike it's nearly a decade old. Because it is. Time to refresh with current design thinking.The layout of a page has evolved over the past decade. These days the best sites break up content into smaller, digestible bits.

2. **Overused stock images and icons**. If visitors see the same image on multiple sites, iterodes trust. That picture of people sitting around the conference table? They sure get around to a lot of offices!

3. **Too many textures and colors**. You are trying to add interest, but you just add clutter. Limit colors and fonts. Maintain a thematic color scheme. For professional sites,try to limit the variety of fonts to three or fewer.

4. **Design for the wrong reasons**. Always begin by identifying your target audience andcustomizing design and content. You may want your site to look "modern" or like another site you've seen, but if you haven't checked in with what your audience needs and wants, you can fail miserably.

6.Your site isn't optimized for mobile. You shouldn't need to be reminded of this, butnumbers don't lie. Mobile is overtaking desktop. It's increasingly likely that your visitors see your site on a tiny screen. If they have to pinch and stretch to read, they'll find a better source of information. Be sure to test your site on smartphone and tablet.

7.**You play hard to get**. If you want customers to find you, make sure your address, phone number and hours of operation are easily accessible on your site. Too often, thatinformation is hidden or completely absent.

PROBLEM ANALYSIS

The problem with a lot of the content that covers website analysis is that the term “website analysis” can refer to a lot of different things—and many of the articles and guides out therereally only tackle *one type* of analysis and *one way* of doing it.

They might show you how to do an in-depth page speed analysis, for example, or conduct anSEO audit of your website. But to really gauge your website’s standing, you need to know how to conduct a full website audit—including search engine optimization (SEO), website speed, competitive analysis, user experience, and more.

How to Do Website Problem Analysis

Many of the guides to website problem analysis we’ve seen focus on the tactical data collection part of the process—but that’s really only one part of conducting a website analysis.It helps you access data and information about your website performance, but it doesn’t explain how to:

- Set and understand your goal for the analysis
- Make sense of the data
- Hypothesize how to improve your website
- Make changes and continuously optimize your website

2. Feasibility analysis for web site projects

Prior to stating whether the system we have to develop is feasible or not we believe that we should emphasize on what is implied by the word “Feasibility”. Feasibility is the measure of how beneficial practical the development of the system will be to the organization. It is a preliminary survey for the systems investigation. 3.2.1 TYPES There are various measures offeasibility that helps to decide whether a particular project is feasible or not. These measures include – □ Operational Feasibility □ Technical Feasibility □ Economic Feasibility An important question to be taken into account is that a feasibility study should be relativelycheap and quick, and it should inform the decision of whether to go

ahead with a more detailed analysis. The input to a feasibility study is an outline description of the system and how it will be used within an organization, and theresult should be a report that recommends whether it is worth carrying on with the development of the project.

The technology (whether the project is technically feasible given the prevailing stateof the art) finance (whether it is financially feasible within cost and budget envisaged by the client) time (whether it will beat the competition to the market) resources (whether the organization has the required resources to attempt the project)
An important aspect is to consider the risks that would make the project infeasible. Accordingto Sommerville, a feasibility study aims to answer certain questions:

- Does the system contribute to the overall objectives of the organization?

- Can it be implemented within current technology andwithin given cost and schedule constraints?

- Can it be integrated with other systems that are alreadyin place?

Product Definition

A product is a solution to a customer problem. Whilst this definition may seem simplistic, it applies for most products and services. A website is a tool that solves customer problems andcan be defined as a product with a lifecycle and a roadmap.

What sort of problems?

From a customer perspective: A website solves a specific problem or requirement. These canbe categorised as follows:

- **Learn:** Share information about new products or services, announcements etc
- **Interact:** Users can carry out functions via a website, such as online banking
- **Transact:** The sale and purchase of other products or services, such as online services
- **Share:** Users can share information with others, such as posting up reviews about movies
- **Connect**: Users can meet and connect with other individuals who share similar views and opinions

Applying the Product Delivery method when creating a website

Idea: All websites commence with an idea – how will this site serve a customer requirementand how will it benefit the provider?

Product strategy: What is the overall goal of launching the site, how does it fit in with theother aspects of the provider's strategy?

Product planning: What does the market want? The problems and requirements and how these could be solved for the customer will be record in a Market Requirements Document.

Product definition: The stage in which the structure and practical elements of how the product will solve the market problems. What it will offer, what functions are required and what business processes are involved will be recorded in a Product, or Website Requirements Document.

Launch planning: Whilst design and development takes place, an implementation plan can beprepared. In the case of a website,

Launch: Websites like any other product must be launched and this involves elements of marketing and communication to make existing and new customers aware of the site.

FEASIBILITY ANALYSIS

A feasibility study is a high-level capsule version of the entire System analysis and Design Process. The study begins by classifying the problem definition. Feasibility is to determine if it's worth doing. Once an acceptance problem definition has been generated, the analyst develops a logical model of the system. A search for alternatives is analyzed carefully. There are 3 parts in feasibility study.

1) Operational Feasibility
2) Technical Feasibility
3) Economical Feasibility

OPERATIONAL FEASIBILITY

Operational feasibility is the measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development. The operational feasibility assessment focuses on the degree to which the proposed development projects fits in with the existing business environment and objectives with regard to development schedule, delivery date, corporate culture and existing business processes. To ensure success, desired operational outcomes must be imparted during design and development. These include such design-dependent parameters as reliability, maintainability, supportability, usability, producibility, disposability, sustainability, affordability and others. These parameters are required to be considered at the early stages of design if desired operational behaviors are to be realized. A system design and development requires appropriate and timely application of engineering and management efforts to meet the previously mentioned parameters. A system may serve its intended purpose most effectively when its technical and operating characteristics are engineered into the design. Therefore, operational feasibility is a

critical aspect of systems engineering that needs to be an integral part of the early design phases.

TECHNICAL FEASIBILITY

This involves questions such as whether the technology needed for the system exists, how difficult it will be to build, and whether the firm has enough experience using that technology. The assessment is based on outline design of system requirements in terms of input, processes, output, fields, programs and procedures. This can be qualified in terms of volume of data, trends, frequency of updating in order to give an introduction to the technical system. The application is the fact that it has been developed on windows XP platform and a high configuration of 1GB RAM on Intel Pentium Dual core processor. This is technically feasible .The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the need of the proposed system.

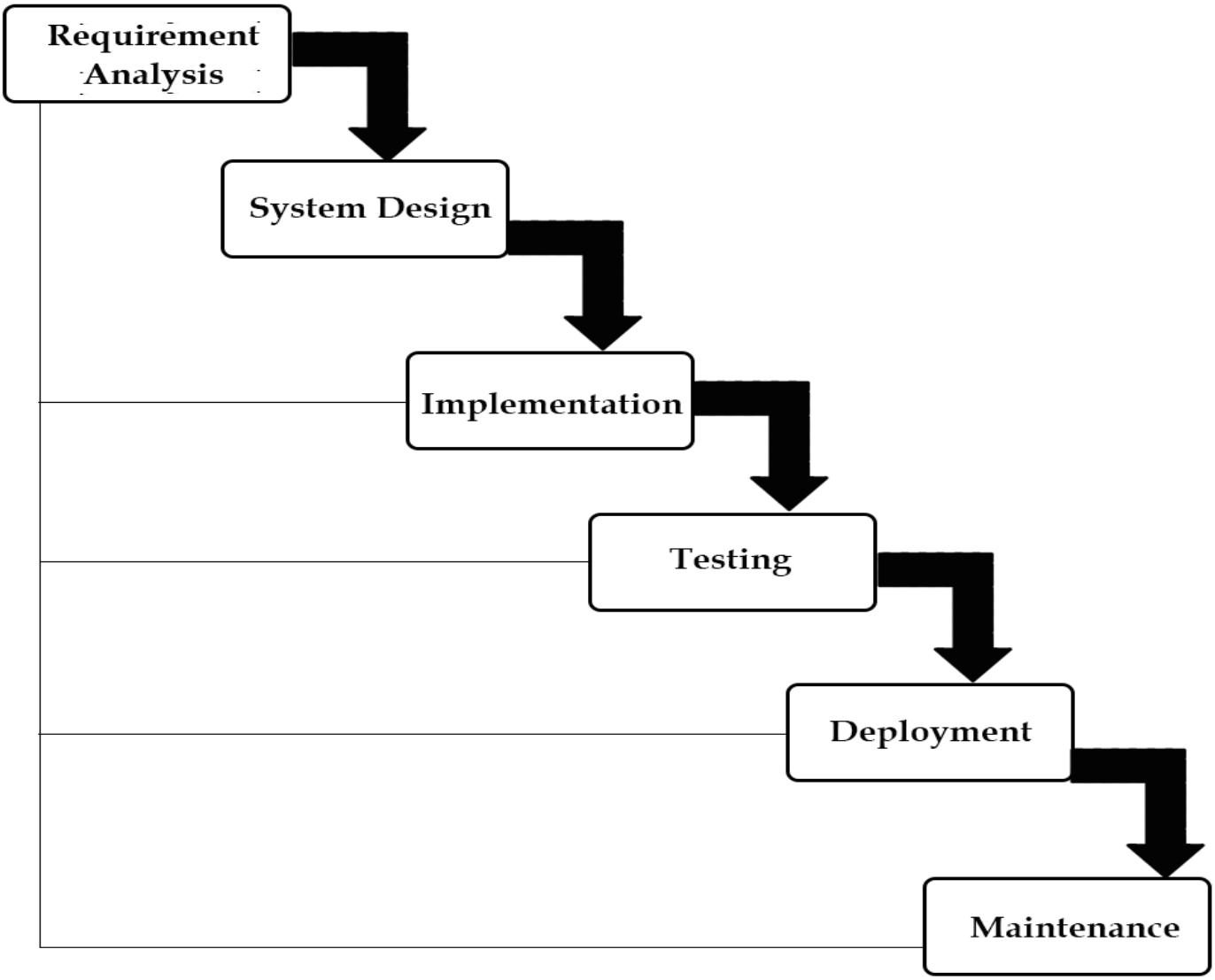
1.4.3 ECONOMICAL FEASIBILITY

Establishing the cost-effectiveness of the proposed system i.e. if the benefits do not outweigh the costs then it is not worth going ahead. In the fast paced world today there is a great need of online social networking facilities. Thus the benefits of this project in the current scenario make it economically feasible. The purpose of the economic feasibility assessment is to determine the positive economic benefits to the organization that the proposed system will provide. It includes quantification and identification of all the benefits expected. This assessment typically involves a cost/benefits analysis.

SOFTWARE REQUIREMENT ANALYSIS

Software Development Life Cycle Model : WATERFALL MODEL

The waterfall model was selected as the SDLC model due to the following reasons:
• Requirements were very well documented, clear and fixed.
• Technology was adequately understood.
• Simple and easy to understand and use.
• There were no ambiguous requirements.
• Easy to manage due to the rigidity of the model. Each phase has specific deliverables and a review process.
• Clearly defined stages.

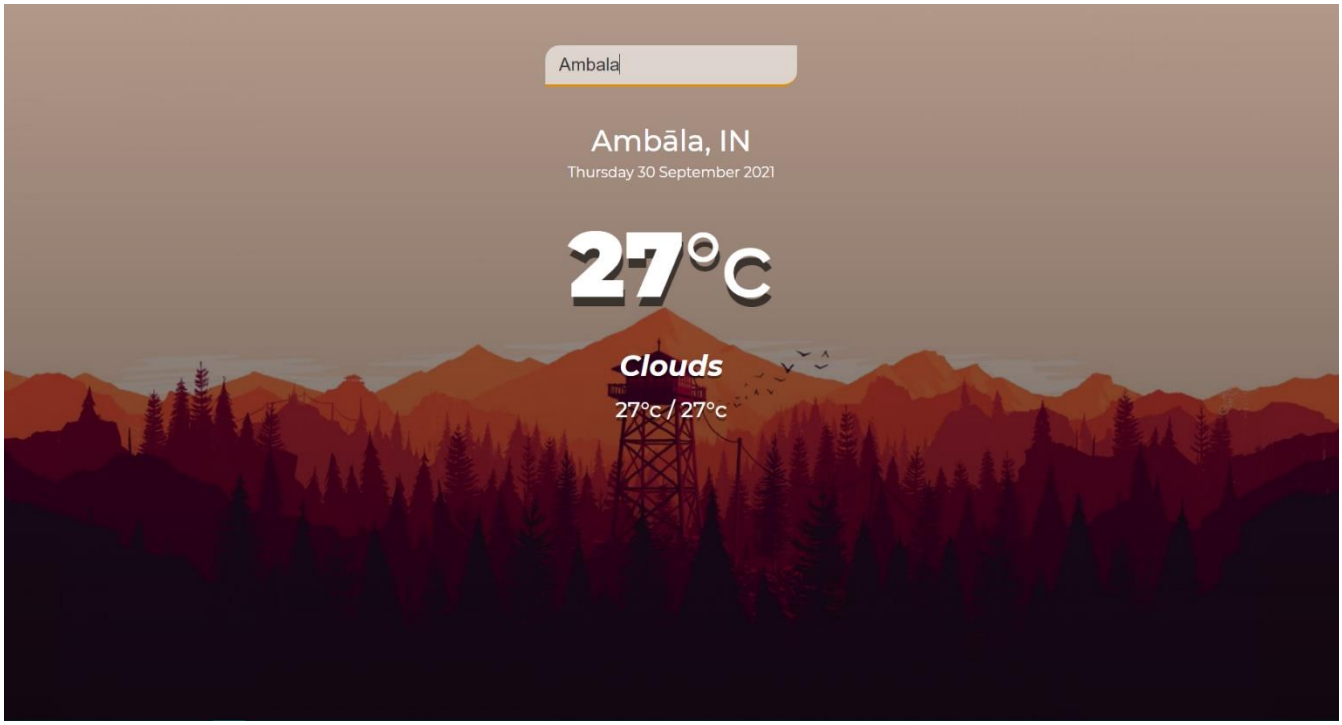


IMPLEMENTATION

Project : Weather App

Source Code:
https://github.com/imrantechwiz/WEBWORKS/tree/main/Weather_app

Live Link: https://weatherdekhlo.netlify.app/



We can check any Weather just by writing by city name, it will show date with day , min & max temp of the day..

About Project:

I named this webapp as Weather Dekhlo because we can check weather of city in Hindi Also..

A JavaScript based application that fetches weather information by making **API calls**

API used: OpenWeatherMap API (open source)
https://openweathermap.org/

Other weather API's collection

Air Pollution API

API doc Subscribe

- Current, forecast and historical air pollution data
- Forecast for 5 days ahead with 1-hour step
- Air Pollution API includes both Air Quality Index and indices for CO, NO, NO_2, O_3, SO_2, NH_3, $PM_{2.5}$, PM_{10}
- Included in both free and paid subscriptions

Geocoding API

API doc Subscribe

- Geocoding API supports both the direct and reverse methods, working at the level of city names, areas and districts, countries and states
- You can cap how many locations with the same name or the nearby geographic coordinates will be seen in the API response
- Included in both free and paid subscriptions

Weather Stations

API doc Subscribe

- API for managing your personal weather stations
- Connect your stations and transfer the measurements
- Receive the aggregated measurements from the station
- Included in both free and paid subscriptions

UV Index Deprecated

API doc Subscribe

- **The product retired on 1st April 2021, please find UVI data in One Call API**
- Current UV index (Clear Sky), forecast and historical data are available for any geo location (lat/lon)
- Interpretation of the UV Index and recommended protection are provided
- JSON format

Weather Triggers

API doc Subscribe

- Simple syntax to create triggers which will be working upon the occurrence of specified weather conditions (temperature, humidity, pressure, etc.) in a certain period of time
- The alerts will be generated in our service once the conditions set in the trigger are met
- Included in both free and paid subscriptions

Example on how to make an API call using your API key

API call

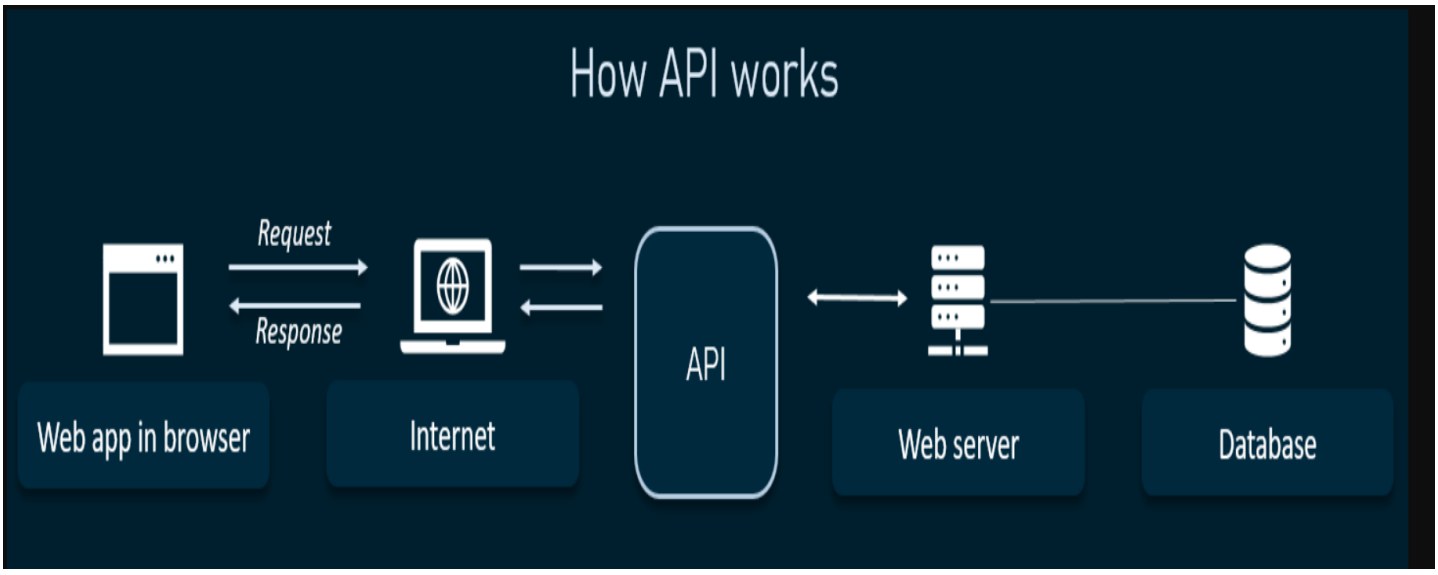
```
http://api.openweathermap.org/data/2.5/forecast?
id=524901&appid={API key}
```

Parameters

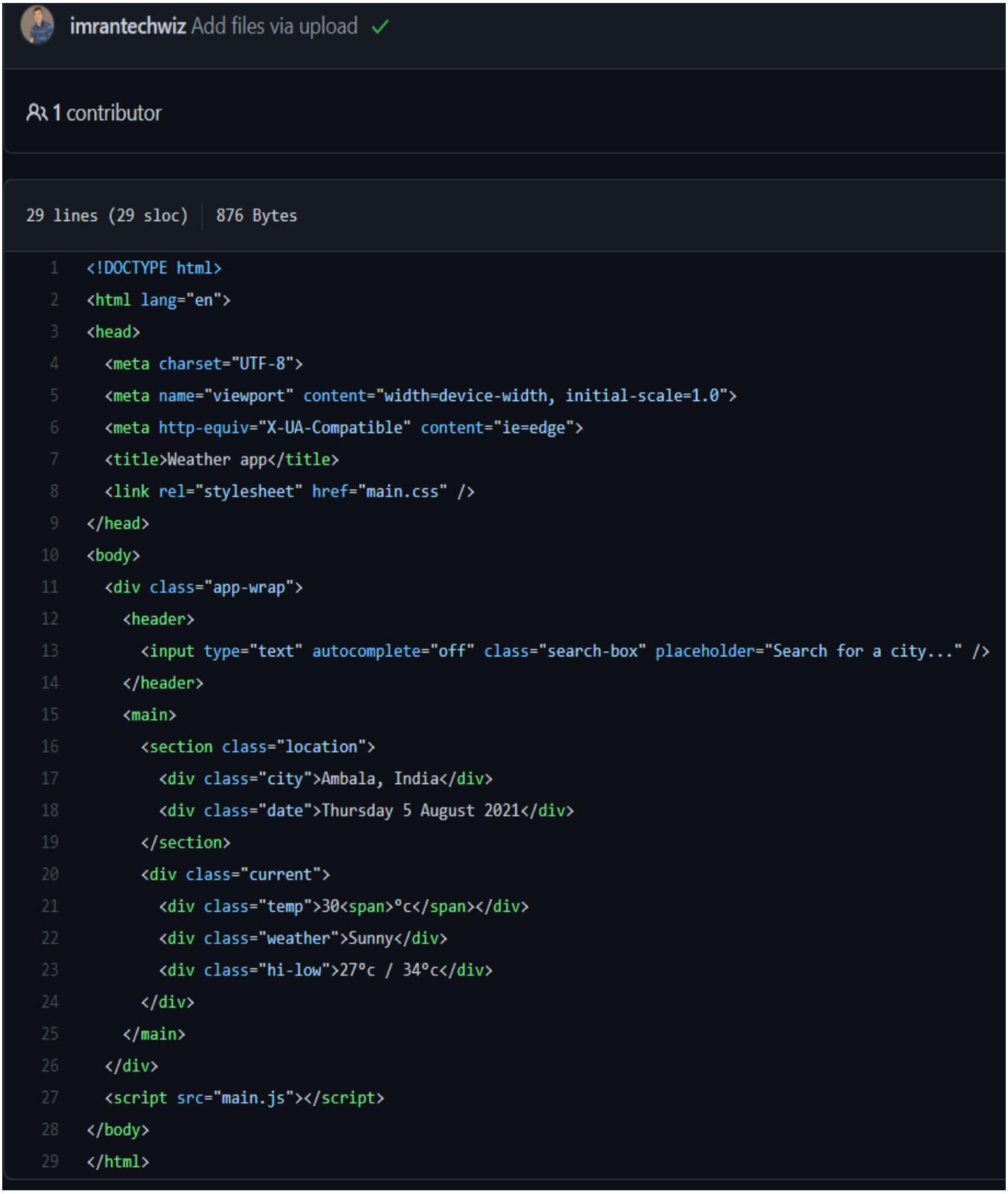
`appid`	required	Your unique API key (you can always find it on your account page under the "API key" tab)

Major Tech Stack Used:

Tools Used: OpenWeatherMap API, Netlify, Git, HTML, CSS, JS.



HTML CODE



imrantechwiz Add files via upload ✓

1 contributor

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```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta http-equiv="X-UA-Compatible" content="ie=edge">
  <title>Weather app</title>
  <link rel="stylesheet" href="main.css" />
</head>
<body>
  <div class="app-wrap">
    <header>
      <input type="text" autocomplete="off" class="search-box" placeholder="Search for a city..." />
    </header>
    <main>
      <section class="location">
        <div class="city">Ambala, India</div>
        <div class="date">Thursday 5 August 2021</div>
      </section>
      <div class="current">
        <div class="temp">30<span>°c</span></div>
        <div class="weather">Sunny</div>
        <div class="hi-low">27°c / 34°c</div>
      </div>
    </main>
  </div>
  <script src="main.js"></script>
</body>
</html>
```

CSS CODE

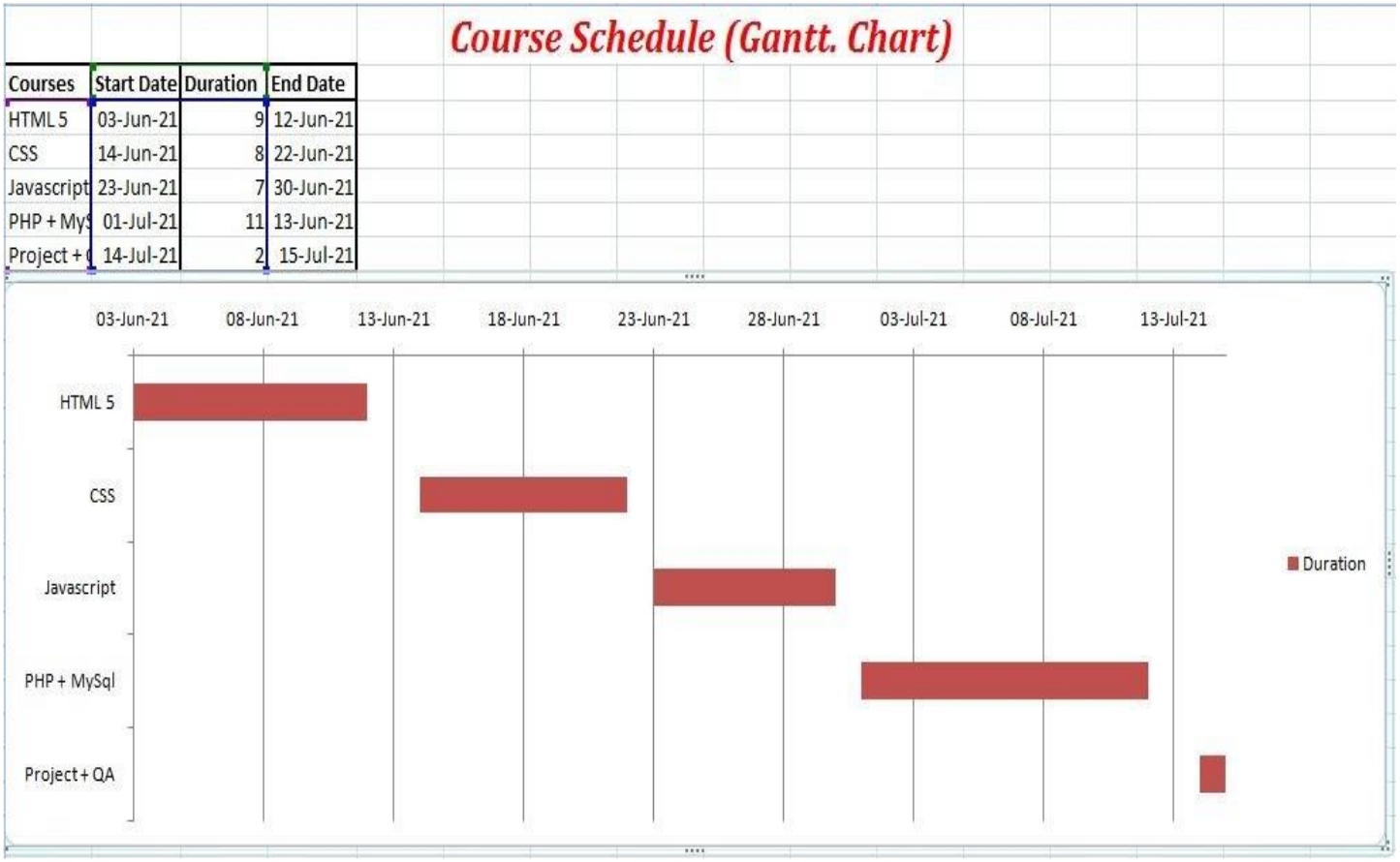
```css
body {
  font-family: 'montserrat', sans-serif;
  background-image: url('bg.jpg');
  background-size: cover;
  background-position: top center;
}

.app-wrap {
  display: flex;
  flex-direction: column;
  min-height: 100vh;
  background-image: linear-gradient(to bottom, rgba(0, 0, 0, 0.3), rgba(0, 0, 0, 0.6));
}

header {
  display: flex;
  justify-content: center;
  align-items: center;
  padding: 50px 15px 15px;
}

header input {
  width: 100%;
  max-width: 280px;
  padding: 10px 15px;
  border: none;
  outline: none;
  background-color: rgba(255, 255, 255, 0.3);
  border-radius: 16px 0px 16px 0px;
  border-bottom: 3px solid #DF8E00;

  color: #313131;
  font-size: 20px;
  font-weight: 300;
  transition: 0.2s ease-out;
}
```

JAVASCRIPT CODE

```
function getResults (query) {
  fetch(`${api.base}weather?q=${query}&units=metric&APPID=${api.key}`)
    .then(weather => {
      return weather.json();
    }).then(displayResults);
}

function displayResults (weather) {
  let city = document.querySelector('.location .city');
  city.innerText = `${weather.name}, ${weather.sys.country}`;

  let now = new Date();
  let date = document.querySelector('.location .date');
  date.innerText = dateBuilder(now);

  let temp = document.querySelector('.current .temp');
  temp.innerHTML = `${Math.round(weather.main.temp)}<span>°c</span>`;

  let weather_el = document.querySelector('.current .weather');
  weather_el.innerText = weather.weather[0].main;

  let hilow = document.querySelector('.hi-low');
  hilow.innerText = `${Math.round(weather.main.temp_min)}°c / ${Math.round(weather.main.temp_max)}°c`;
}

function dateBuilder (d) {
  let months = ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"];
  let days = ["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"];

  let day = days[d.getDay()];
  let date = d.getDate();
  let month = months[d.getMonth()];
  let year = d.getFullYear();

  return `${day} ${date} ${month} ${year}`;
}
```

GANTT CHART

A Gantt chart is a type of bar chart that illustrates a project schedule..



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https://www.javatpoint.com/html-tutorial

https://www.javatpoint.com/css-tutorial

https://www.freecodecamp.org/

Course Link:

https://online.codingblocks.com/courses/web-development-online-course