YPI (Your Private Internet)

Minor Project

MCA 3rd Year

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ABSTRACT

YPI (Your Private Internet)

Your Private Internet is a process manager that serves internet services to you on your device and all network requests go through the proxy so your data is private and safe from software giants.

The main intention is to Build a secure service that will help a user to protect his or her data.

Goals:

- Host services that leak critical information yourself
- Proxy all requests with an anonymous connection
- Easy to use background application with a dashboard to manage services
- Services are made available as packages.
- The main priority is to keep the user information safe from others.

Introduction

The things we have used to implement this project are as follows -

1. Vscode (IDE)
2. For database connectivity, we will use SQlite
3. We use REACT for the Front End
4. And for the backend, we use Python (First API)
5. GraphiteJS (Graphql)
6. We used Environment variables
7. CSS (Cascading Styling Sheet)
8. Yarn

1. VSCODE: -

Visual Studio Code is a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle and leaves more complex workflows to fuller featured IDEs, such as Visual Studio IDE.

Why use vscode?

With support for hundreds of languages, VS Code helps you be instantly productive with syntax highlighting, bracket-matching, auto-indentation, box-selection, snippets, and more. Intuitive keyboard shortcuts, easy customization and community-contributed keyboard shortcut mappings let you navigate your code with ease.

How To Install?

Download the Visual Studio Code installer for Windows.

Once it is downloaded, run the installer (VSCodeUserSetup-{version}.exe), this will only take a minute.

By default, VS Code is installed under C:\users\{username}\AppData\Local\Programs\Microsoft VS Code.

User setup versus system setup:

VS Code provides both Windows user and system level setups. Installing the user setup does not require Administrator privileges as the location will be under your user Local AppData (LOCALAPPDATA) folder. User setup also provides a smoother background update experience.

The system setup requires elevation to Administrator privileges and will place the installation under Program Files. This also means that VS Code will be available to all users in the system.

See the Download Visual Studio Code page for a complete list of available installation options.

Next steps:

Once you have installed VS Code, these topics will help you learn more about VS Code:

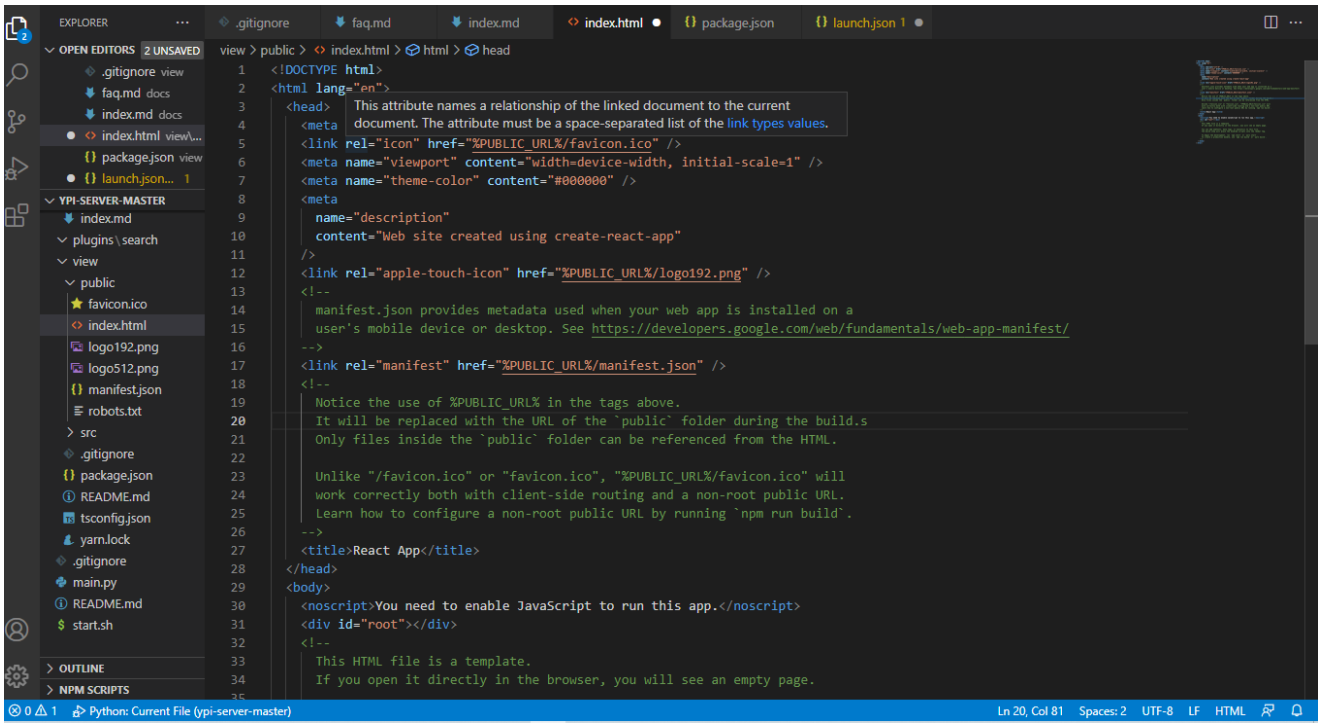
Additional Components - Learn how to install Git, Node.js, TypeScript, and tools like Yeoman.

User Interface - A quick orientation to VS Code.

User/Workspace Settings - Learn how to configure VS Code to your preferences through settings.

Tips and Tricks - This lets you jump right in and learn how to be productive with VS Code.

In this project(YPI) we use Visual Studio Code as IDE



2.<u>SQLITE</u>: -

What Is SQLite?

SQLite is a C-language library that implements a small, fast, self-contained, high-reliability, full-featured, SQL database engine. SQLite is the most used database engine in the world. SQLite is built into all mobile phones and most computers and comes bundled inside countless other applications that people use every day. More Information...

The SQLite file format is stable, cross-platform, and backwards compatible and the developers pledge to keep it that way through the year 2050. SQLite database files are commonly used as containers to transfer rich content between systems and as a long-term archival format for data. There are over 1 trillion (1e12) SQLite databases in active use.

SQLite source code is in the public domain and is free to everyone to use for any purpose.

Why did we use Sqlite?

The database will untie your UI from the internet connection and thus you will be able to display results even if there is no internet connection. Using the database, you will be able to fetch the updated data from the background service, without impacting your UI.

But for now, we didn't use it, as the database is not implemented in this project. We will use it in future.

3. REACT: -

React is a component-based JavaScript frontend library that is used to build the user interface especially for Single Page Applications (SPA). ReactJs is not only used for web development, but you can also develop Mobile Apps, Desktop Apps Virtual Reality Apps and many more.

Why did we use React?

React. js is an open-source JavaScript library that is used for building user interfaces specifically for single-page applications. It's used for handling the view layer for web and mobile apps. ... React allows developers to create large web applications that can change data, without reloading the page.

How to use React?

Step 1: Add a DOM Container to the HTML

First, open the HTML page you want to edit. Add an empty tag to mark the spot where you want to display something with React. For example:

```
<!-- ... existing HTML ... -->

<div id="like_button_container"></div>

<!-- ... existing HTML ... -->
```

Step 2: Add the Script Tags

Next, add three <script> tags to the HTML page right before the closing </body> tag:

The first two tags load React. The third one will load your component code.

```
  <!-- ... other HTML ... -->

  <!-- Load React. -->
  <!-- Note: when deploying, replace "development.js" with "production.min.js". -->
  <script src="https://unpkg.com/react@17/umd/react.development.js" crossorigin></script>
  <script src="https://unpkg.com/react-dom@17/umd/react-dom.development.js" crossorigin></script>

  <!-- Load our React component. -->
  <script src="like_button.js"></script>

</body>
```

Step 3: Create a React Component

Create a file called like_button.js next to your HTML page.

Open this starter code and paste it into the file you created.

After the starter code, add two lines to the bottom of like_button.js:

```
// ... the starter code you pasted ...

const domContainer = document.querySelector('#like_button_container');
ReactDOM.render(e(LikeButton), domContainer);
```

4. PYTHON: -

What is python programming used for?

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.

What can Python do?

Python can be used on a server to create web applications.

Python can be used alongside software to create workflows.

Python can connect to database systems. It can also read and modify files.

Python can be used to handle big data and perform complex mathematics.

Python can be used for rapid prototyping or production-ready software development.

Why Python?

Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.).

Python has a simple syntax similar to the English language.

Python has a syntax that allows developers to write programs with fewer lines than some other programming languages.

Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.

Python can be treated procedurally, in an object-oriented way or in a functional way.

How to install Python?

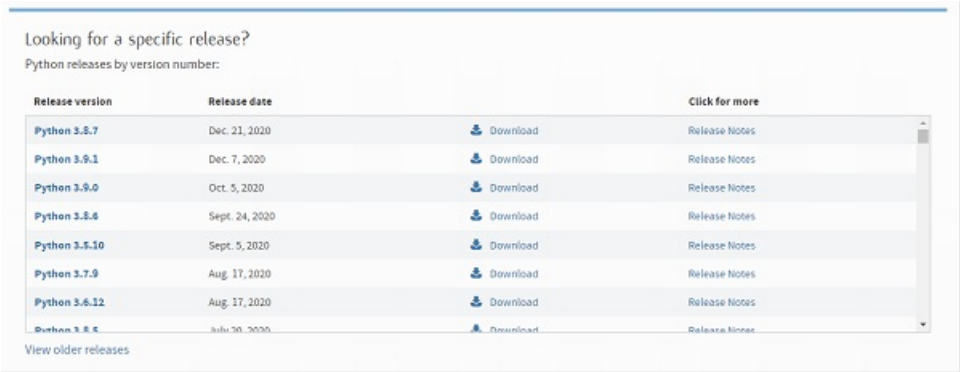
Step 1 – Select Version of Python to Install

Python has various versions available with differences between the syntax and working of different versions of the language. We need to choose the version which we want to use or need. There are different versions of Python 2 and Python 3 available.

Step 2 – Download Python Executable Installer

On the web browser, in the official site of python (www.python.org), move to the Download for Windows section.

All the available versions of Python will be listed. Select the version required by you and click on Download. Let's suppose, we chose the Python 3.9.1 version.



Step 3 – Run Executable Installer

We downloaded the Python 3.9.1 Windows 64-bit installer.

Run the installer. Make sure to select both the checkboxes at the bottom and then click Install New.

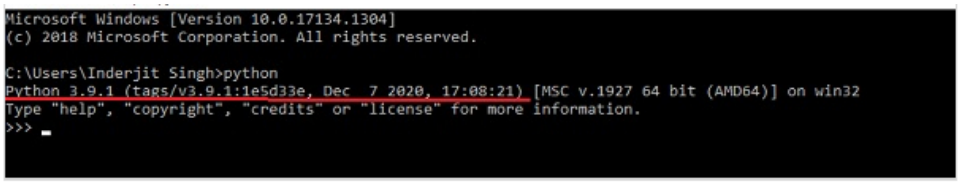
Step 4 – Verify Python is installed on Windows

To ensure if Python is successfully installed on your system. Follow the given steps –

Open the command prompt.

Type ‘python’ and press enter.

The version of python that you have installed will be displayed if the python is successfully installed on your windows.



Step 5 – Verify Pip was installed

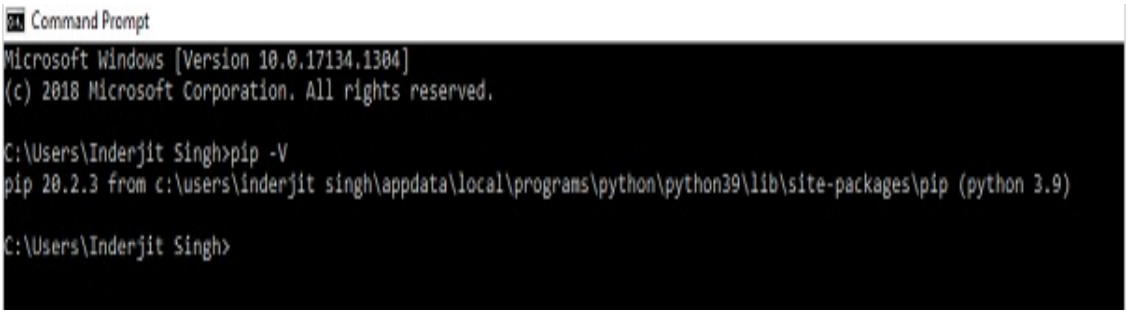
Pip is a powerful package management system for Python software packages. Thus, make sure that you have it installed.

To verify if pip was installed, follow the given steps –

Open the command prompt.

Enter pip –V to check if pip was installed.

The following output appears if pip is installed successfully.



Making Our First API Request

There are many different types of requests. The most commonly used one, a GET request, is used to retrieve data. Because we'll just be working with retrieving data, our focus will be on making 'get' requests.

When we make a request, the response from the API comes with a response code that tells us whether our request was successful. Response codes are important because they immediately tell us if something went wrong.

To make a ‘GET’ request, we’ll use the requests.get() function, which requires one argument — the URL we want to request to. We’ll start by requesting an API endpoint that doesn’t exist, so we can see what that response code looks like.

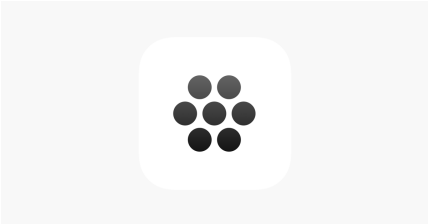
```
response = requests.get("https://api.open-notify.org/this-api-doesnt-exist")
```

The get() function returns a response object. We can use the response.status_code attribute to receive the status code for our request:

```
print(response.status_code)
```

```
404
```

5. Graphite (Graphql): -



What is Graphite?

graphyte is a small Python library that sends data to a Graphite metrics server (Carbon). We wrote it because the existing graphitesend library didn't support Python 3, and it also required events for asynchronous use.

How does Graphite work?

Graphite generates the GraphQL queries automatically based on what "fields" the user selects in the editor - no code required!

Why GraphQL?

GraphQL is the best source of data for building user interfaces. It is like the "glue" that unifies the frontend and backend. Building a "NoCode" tool around GraphQL is optimal because it is easier to transition to an engineering team if you ever need to.

What platforms does Graphite support?

Currently, Graphite only supports deploying to the web; however, Graphite is made with all platforms in mind. Stay tuned.

6. Environment Variables (python): -

When to Use Python Environment Variables?

First, assess when it makes sense to use them. Keep in mind that environment variables are inherently not linked with the rest of the code. This means that it's best to use it in cases where having the variable change with the environment is necessary to keep scripts updated.

Common use cases for environment variables include authentication keys (like the API token example we mentioned) and execution mode (e.g. development, staging, production).

Next, let's take a look at actually implementing these variables. You will eventually bring them into your code, but for now, open up your Python interpreter so we can walk through a few fundamentals together.

How to Get Environment Variables With Python

Environment variables are implemented through the os package, specifically os. environ.

To see all environment variables on your system just call it:

```
1. import os
2.
3. print(os.environ)
```

There are a few basic commands for implementing environment variables:

One of the first things you'll want to know is the current value for specific environment variables in your session. For that, there's os.environ.get(). This retrieves the value of an environment variable currently set on your system.

```
1.  os.environ.get('USER')
2.
3.  >>> 'Alice'
```

If there isn't an environment variable matching the key, it'll return None:

```
1.  os.environ.get('Nonexistent-variable')
2.
3.  >>> None
```

How to Set Environment Variables in Python

You can also set environment variables to new strings. This is done similarly to Python dictionaries. It's important to note that this changes the environment variable in this session. In other words, changing the environment variable here will not affect the environment variable anywhere else.

```
1. os.environ['USER'] = 'Bob'
```

If you need to clear a single environment variable in the session you can use os.environ.pop() with the key and if you need to clear all environment variables you can use os. environ.clear()

```
1. os.environ.pop('USER')
2.
3. os.environ.clear()
```

It's important to remember that the settings you apply in a Python script don't work outside that specific process; os. environ doesn't overwrite the environment variables system-wide. If you need to permanently delete or set environment variables you will need to do so with a shell environment, such as Bash.

7. CSS(Cascading Style Sheets): -

Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.

Why Use CSS?

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

CSS helps you to keep the informational content of a document separate from the details of how to display it. The details of how to display the document are known as its style. You keep the style separate from the content so that you can:

Avoid duplication

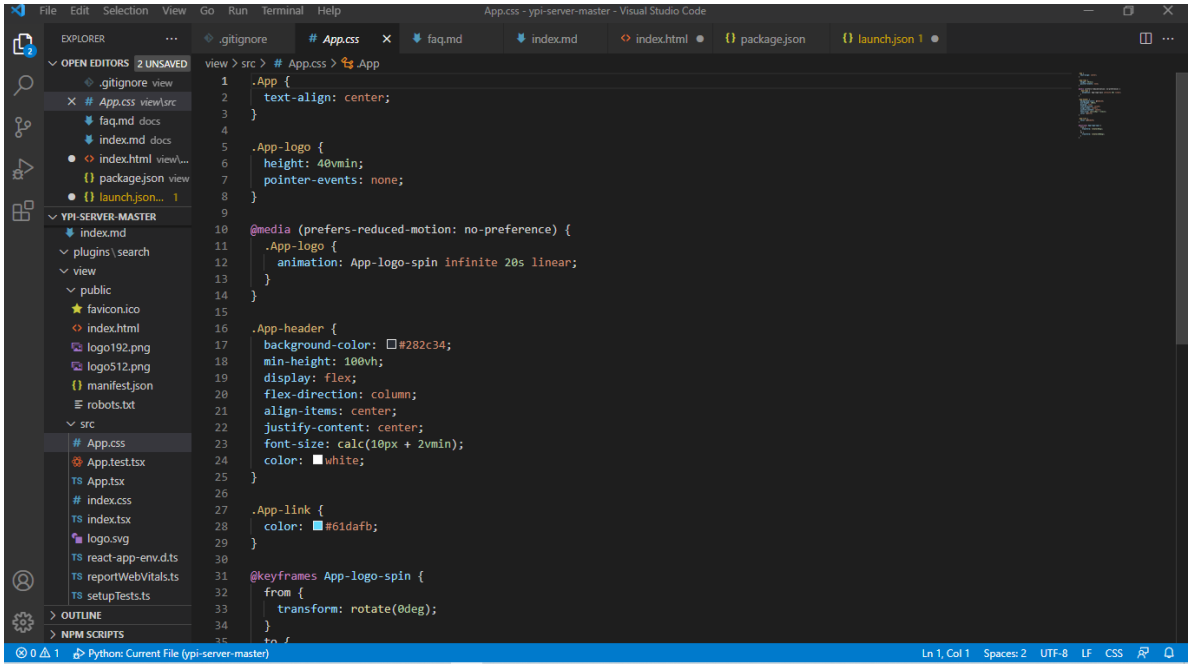
Make maintenance easier

Use the same content with different styles for different purposes

Your website might have thousands of pages that look similar. Using CSS, you store the style information in common files that all the pages share. When a user displays a web page, the user's browser loads the

style information along with the content of the page. When a user prints a web page, you might provide different style information that makes the printed page easy to read.

In general, you use HTML to describe the content of the document, not its style; you use CSS to specify its style, not its content. There are exceptions to this rule, of course, and HTML also provides some ways to specify style. For example, in HTML you can use a <b> tag to make text bold, and you can specify the background colour of a page in its <body> tag. When you use CSS, you normally avoid using these HTML style features so that all your document's style information is in one place.



8. Yarn: -

Yarn is a new package manager that replaces the existing workflow for the npm client or other package managers while remaining compatible with the npm registry. It has the same feature set as existing workflows while operating faster, more securely, and more reliably.

It stands for Yet Another Resource Negotiator and it is a package manager just like npm. It was developed by Facebook and is now open-source. The intention behind developing yarn(at that time) was to fix performance and security concerns with npm.

How to Install Yarn?

Install via npm

It is recommended to install Yarn through the npm package manager, which comes bundled with Node.js when you install it on your system.

Once you have npm installed you can run the following both to install and upgrade Yarn:

```
npm install --global yarn
```

`yarn start`

Runs the app in the development mode.\

Open http://localhost:3000 to view it in the browser.

The page will reload if you make edits.\

You will also see any lint errors in the console.

`yarn test`

Launches the test runner in the interactive watch mode.

See the section about [running tests](https://facebook.github.io/create-react-app/docs/running-tests) for more information.

`yarn build`

Builds the app for production to the `build` folder.

It correctly bundles React in production mode and optimizes the build for the best performance.

The build is minified and the filenames include the hashes.

Your app is ready to be deployed!

See the section about [deployment](https://facebook.github.io/create-react-app/docs/deployment) for more information.

`yarn eject`

Note: this is a one-way operation. Once you `eject`, you can’t go back!

If you aren’t satisfied with the build tool and configuration choices, you can `eject` at any time. This command will remove the single build dependency from your project.

Instead, it will copy all the configuration files and the transitive dependencies (webpack, Babel, ESLint, etc) right into your project so you have full control over them. All of the commands except `eject` will still work, but they will point to the copied scripts so you can tweak them. At this point, you’re on your own.

You don’t have to ever use `eject`. The curated feature set is suitable for small and middle deployments, and you shouldn’t feel obligated to use this feature. However, we understand that this tool wouldn’t be useful if you couldn’t customize it when you are ready for it.

Bibliography

References used:

Online Sources - Github

Online Journals - Data gathered from news articles like Quora, Forbes, the Print

Softwares used- React, Python, SQlite, Git, GraphQl, Proxy

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Credits

Special thanks to our mentor Dr Gunjan Mukherjee for guiding us on the right path and providing keynotes and references in the completion of our project.