**DEVELOPMENT PROCESS DOCUMENTATION OF THE VANGUARD DASHBOARD POC**

This documentation provides a detailed view on how the Dashboard POC of the Web application has been desgined. The purpose of this POC is to provide an overview on how the Goal tracking part of the Web application would look like.

This application has been developed with the help of many technologies which will be detailed in this documentation. The detailed explanation on why certain technology libraries have been chosen is also provided in this documentation.

The design concept and the architecture of the developed application have also been explained in this report.The content structure and various modules used in the process have also been detailed in this report.

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**ABBREVIATIONS AND TERMS**

HTML Hyper Text Markup Language

CSS Cascading Style Sheet

JS JavaScript

JSX JavaScript XML

NPM Node Package Manager

ES6 ECMAScript 6

DOM Document Object Model

XML eXtensible Markup

UI User Interface

POC Proof of Concept

SEO Search Engine Optimisation

Web development Development of websites or web applications

# PREFACE

This report explains the process and the technologies with which the application has been created. Different technologies has been used in this process of development. But the major library that was used to create the POC was ReactJs. The structure and the modules that have been used in the process is also detailed in this report.This thesis mainly aims providing an insight on how the POC of the web application has been created and what content it aims to provide.

# TECHNOLOGIES

This section describes the technologies that are used in the process. The basic web technologies like HTML, CSS, JavaScript and many other have been discussed in detail in this section.

# 2.1 HTML

HTML (HyperText Markup Language) is the most basic building block of the Web.

It defines the meaning and structure of web content. Other technologies besides

HTML are generally used to describe a web page's appearance/presentation (CSS)

or functionality/behavior (JavaScript).

**2.1.1 Applications of HTML:**

As mentioned before, HTML is one of the most widely used language over the web.

I'm going to list few of them here:

* Web pages development - HTML is used to create pages which are rendered over the web. Almost every page of web is having html tags in it to render its details in browser.
* Internet Navigation - HTML provides tags which are used to navigate from

one page to another and is heavily used in internet navigation.

* Responsive UI - HTML pages now-a-days works well on all platform, mobile, tabs, desktop or laptops owing to responsive design strategy.

# 2.2 CSS:

* CSS stands for Cascading Style Sheets.
* CSS describes how HTML elements are to be displayed on screen,

paper, or in other media.

* CSS saves a lot of work.
* It can control the layout of multiple web pages all at once.

**2.3 BOOTSTRAP:**

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first

front-end web development.It contains CSS- and (optionally) JavaScript-based design

templates for typography,forms, buttons, navigation, and other interface components.

Bootstrap is a web framework that focuses on simplifying the development of informative

web pages (as opposed to web apps). The primary purpose of adding it to a web project

is to apply Bootstrap's choices of color, size, font and layout to that project.

As such, the primary factor is whether the developers in charge find those choices

to their liking. Once added to a project, Bootstrap provides basic style definitions

for all HTML elements. The result is a uniform appearance for prose, tables and form

elements across web browsers. In addition, developers can take advantage of

CSS classes defined in Bootstrap to further customize the appearance of their contents.

For example, Bootstrap has provisioned for light- and dark-colored tables,page headings,

more prominent pull quotes, and text with a highlight.

# 2.4 JAVASCRIPT:

JavaScript ("JS" for short) is a full-fledged dynamic programming language that can

add interactivity to a website. It was invented by Brendan Eich (co-founder of the

Mozilla project,the Mozilla Foundation, and the Mozilla Corporation). JavaScript is dynamically typed like most other scripting languages. A type is associated with a value rather than an expression.

For example, a variable initially bound to a number may be reassigned to a string.

JavaScript supports various ways to test the type of objects, including duck typing.

**2.4.1 ES6:**

ECMAScript (or ES) is a general-purpose programming language, standardized by

Ecma International according to the document ECMA-262. It is a JavaScript standard

meant to ensure the interoperability of Web pages across different Web browsers.

ECMAScript is commonly used for client-side scripting on the World Wide Web, and it

is increasingly being used for writing server applications and services using Node.js.

**2.5 REACTJS:**

React (also known as React.js or ReactJS) is an open-source, front end, JavaScript

library for building user interfaces or UI components. It is maintained by Facebook

and a community of individual developers and companies. React can be used

as a base in the development of single-page or mobile applications. However, React

is only concerned with rendering data to the DOM, and so creating React applications

usually requires the use of additional libraries for state management and routing.

Redux and React Router are respective examples of such libraries.

**2.5.1 React Features**:

1. The Virtual DOM. The document object model or DOM manipulation is one of the most important parts of the web.

2. One-way data-binding means that through the whole application data flows only in one direction.

3. Components.

4. JSX.

5. Conditional Statements.

6. Lifecycle Methods.

**2.5.2 React Advantages:**

1. ReactJS simplifies the overall process of scripting components.

2. It facilitates advanced maintenance and boosts productivity.

3. It guarantees quicker rendering.

4. ReactJS offers a more stable code.

5. ReactJS is SEO friendly.

6. React JS comes with helpful developer toolset.

7. React framework for mobile app.

**2.5.3 React JSX:**

JSX provides you to write HTML/XML-like structures (e.g., DOM-like tree structures)

in the same file where you write JavaScript code, then preprocessor will transform

these expressions into actual JavaScript code. Just like XML/HTML,JSX tags have

a tag name, attributes, and children.

# 3 TECHNOLOGIES USED IN THE DEVELOPMENT:

This section the technologies that are used in the development of the UI-library. The

distributed UI-library package includes the libraries, documentation application and

their dependencies.

# NPM:

NodeJS is a Javascript runtime environment that is being widely used for creating web applications. NPM (originally short for Node Package Manager) is a package manager for the JavaScript programming language. npm, Inc. is a subsidiary of GitHub, an American multinational corporation that provides hosting for software development and version control with the usage of Git. It is the default package manager for the JavaScript runtime environment Node.js. It consists of a command line client, also called npm, and an online database of public and paid-for private packages, called the npm registry. The registry is accessed via the client, and the available packages can be browsed and searched via the npm website.The package manager and the registry are managed by npm, Inc.

# 4 MATERIAL UI:

Material UI is the most powerful and efficient tool to build an Application by adding

Designs and Animations and use it with technical and scientific innovation.

It is basically a design language that was developed by Google in 2014. It uses more

Design and Animations, grid-system and provides shadows and lightning effects.

It can be used with all the JavaScript frameworks like AngularJS, ReactJS, VueJS etc.

to make the Application more amazing and responsive. With over 35,000 stars on the

GitHub, Material UI is one of the top User Interface libraries for React.

Features of Material UI: Material UI provides low-level utility functions called

“style functions” for building powerful design systems.

1. Access the theme values directly from the component props.

2. Encourage UI consistency.

3. Write responsive style effortlessly.

4. Work with any theme object.

5. Less than KB g zipped.

6. Fast enough to execute.

In this project, we have use two UI material

1. SideBar

2.Card

# 5 BRIEF EXPLANATION OF THE DEVELOPMENT PROCESS OF THE DOCUMENTATION APPLICATION:

The major goal during the development of the application was to create a modern user-friendly UI base. The usage of Reactjs technology helped in smoothening the process as most of the UI componenets are available as library modules for easy implementation and maintainbility. MaterialUI has been used for implementing the Side Bar and cards in the application.The material ui packages have been initially installed using the npm commands and the Components has been then used in the project.The entire page has been divided into two grids , NavBar and the SideBar. The structure of the application and the dependencies used to create have been added in the document.

# CONTENT STRUCTURE:

# The create-react-app tool was launched by Facebook and is a recommended way of setting up a new project. To create a new app/project using this tool, all we need to do is run the command "create-react-app" followed by the app name.

# >>create-react-app dashboard

# After running the above command, a new folder called "dashboard" will get created

# and that would have all of our application code.

# 6.1 Project Layout:

# +-- README.md

# +-- node\_modules

# +-- .gitignore

# +-- build

# +-- public

# +-- assests

# +-- image1.jpeg

# +-- image2.jpeg

# ¦ +-- favicon.ico

# ¦ +-- index.html

# ¦ +-- manifest.json

# +-- src

# +-- components

# +-- card.js

# +-- sideNavbar.js

# +-- App.css

# +-- App.js

# +-- App.test.js

# +-- index.css

# +-- index.js

# +-- logo.svg

# +-- serviceWorker.js

# +-- package.json

# +-- package-lock.json

# Build represents the path to our final production build. This folder would actually be

# created after we run the npm build. All the "dependencies" and "devDependencies"

# required by the React app in node\_modules. These are as specified or seen in the

# package.json file. When the run command is given as ls -1, it’ll show almost 800 subdirectories.

# This directory gets added to .gitignore so it does not really getuploaded/published.

# All of the dynamic components will be located in the src. To ensure that, at the client

# side, only the most recent version is downloaded and not the cached copy, Webpack will

# generally have the updated files a unique file name in the final build. We can also see

# files like App.js which is kind of our main JS component and the corresponding styles go

# in App.css. index.js is the entry point for our App and it triggers the

# registerServiceWorker.js. And also a 'components' directory here to add new components

# and their associated files, as that improves the organization of our structure.

# The overall configuration for the React project is outlined in the package.json. Below is what that looks like:

# C:\Users\Monika\Desktop\packagejson.jpg

# Figure 1: package.json

# IMPLEMENTATION OF THE APPLICATION

# Development of the application:

This entire application has been created using ReactJS. Initially the base react application was created with create-react-app. The create-react-app npm module was installed and the application was created. The entire page was seperated into grids to implement the Navigation bar and the side Navigation bar. Bootstrap 4 was used to create the grid system. The Navigation bar was created with the help of Bootstrap 4 and CSS. The side NavBar was created using the Material UI library. The component used in the library for creating the sidebar was Tabs. OnClick of the tabs ,The tab panel will be displayed in a container. The cards inside the container were also created with the help of Material UI library. The components Card from the library is used to create the structure. The various icons used in the webpage were used with the help of React Font Awesome icons. The Donut icon used in the webpage was created using react-svg-donut-chart module.

# CONCLUSION:

# The POC of the Webpage Dashboard has been created. The aim of this project and this documentation was to create a prototype as to how the application will look like. The changes in the UI can be updated along the way as per the requirement of the client and the organisation.The source code could be modified by developers in the future as per the requirement changes from the client and the changes from the React libraries too as they are updated in a consistent manner.

# 9 SOURCES:

**Referring properties for Donut Chart:**

* <https://www.npmjs.com/package/react-svg-donut-chart>

**Referring properties for Cards:**

* <https://material-ui.com/components/cards/>

**Referring properties for SideBar:**

* <https://material-ui.com/components/tabs/>

**Referring properties for Technologies:**

* <https://en.wikipedia.org/wiki/Npm_(software)>
* <https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)>
* <https://www.geeksforgeeks.org/material-ui-introduction-and-installation-for-react/>