PWA assignment - 2

Name: Sumeet Kumar Singh   Roll No - 6d   Date: 11/5/23

Q.1 Define Progressive web App and explain its significance in modern web development. Discuss the key characteristics that differentiate PWAs from traditional mobile apps.

Soln: PWA is a type of web app that utilizes modern web capabilities to deliver an app like experience to users. It combines the best features of the web app and mobile apps to offer offline functionality, push notifications and installation on devices.

Key characteristics of PWA:

1. Responsive: PWAs are designed to work seamlessly across various devices and screen sizes adapting to user's device.

2. Connectivity: They can work offline as with a poor internet connection, leveraging service workers to cache resources and provide basic functionality.

3. App like experience: PWAs mimic the look and feel of native mobile apps, offering smooth animations.

4. Discoverable: PWA's can be found through search engines and do not require installation from an app store.

5. secure: PWAs are served over HTTPs to ensure data privacy and security.

Q.2 Define responsive web design and explain its
importance in the context of progressive web
apps. Compare and contrast responsive,
and adaptive web design approaches.

Soln: Responsive web design is an approach to
designing websites that ensures they adapt and
respond appropriately to various screen
sizes, orientations and devices.
In the context of PWA, responsive web design
is crucial because it ensures that the app's
interface remains user-freindly and functional
across different devices.

* Comparison:

1. Responsive web design: Uses flexible grids and
layouts, CSS media queries and fluid images
to adapt the website's design to different
screen sizes and orientations.

2. Fluid web design: Similar to responsive design, fluid
web design also utilizes flexible layout and
percentage for sizing elements, but it may not
necessarily incorporate media queries to adjust
the design based on specific breakpoints.

Q.3 Describe the lifecycle of service workers, including registration, installation and activation process.

Soln: ① Registration: Service workers are registered by the web app through Javascript code in the main page. This registration typically occurs in the background and involves specifying the path to the service worker script.

② Installation: Once registered, the browser downloads and installs the service worker script. During installation, the service worker can cache static assets and other resources needed for offline functionality.

③ Activation: After installation, the service worker enters the activation phase. During activation the service worker can clean up old caches, initialize necessary data and start interrupting network requests.

Q.4 Explain the use of Indexed DB in the service worker for data storage.

Soln: Indexed DB is a client-side storage mechanism that allows service workers to store structured data locally within the browser. It enables web applications, including those utilizing service service workers, to store and retrieve data efficiently, providing offline functionality, and enhancing performance by

by reducing the need for constant network requests. Indexed DB is particularly useful in service workers for tasks such as caching dynamic content, managing user preferences and supporting offline capabilities.