

Assignment - 2

MPL

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(2)

Define Progressive webApp and explain its significance in Modern web development.
Discuss the key characteristics that differentiate PWA, From traditional mobile apps

A progressive web app is a web application that delivers a native applike experience using modern web technologies. It offers offline access, push notification and fast performance while being installable from a browser without needing an app store.

- 1) Installation:- PWA's install via browser while mobile apps store downloads
- 2) Cross platforms:- PWA's work on all devices whereas mobile apps need separate development for android and iOS
- 3) Storage:- PWA's take up less space compared to large mobile apps

2. Define responsive web design and explain its importance in the context of progress web apps

→ Responsive web design
→ ensures web pages adapt dynamically to different screen sizes using flexible grids, media queries and CSS techniques

Importance in PWAs

- 1) ensures seamless experience on all devices
- 2) Improves accessibility, performance and SEO
- 3) Enhances user engagement and conversion

Comparison

- 1) Responsive: uses flexible grids and media queries for all screens
- 2) Fluid: uses percentage based layouts for smooth resizing

Describe the lifecycle of service, including registration, installation and activation Phases.

Registration :- web page registers the service worker using navigator.serviceWorker.register()

Installation :- caches static assets triggered by install event

Activation :- clears old caches and prepare for control, triggered by activate event

Termination and update
~~Auto terminated when idle when a new version is registered.~~

Q1. explain the use of IndexedDB in the service workers for data storage.

⇒ • IndexedDB in service workers.

IndexedDB is used in service workers for offline data storage beyond static assets, enabling persistent structured storage for API responses, user data and form inputs.

• why use it?

- 1) storage dynamic data offline for PWAs.
- 2) asynchronous & efficient, preventing UI blocking.
- 3) persistent storage, even after closing the browser.

• example -

1) open/create a database:-

```
const request = indexedDB.open("my database", 1);
request.onsuccess = (event) => {
  event.target.result.createObjectStore("datastore",
    { keypath: "id" });
};
```

IndexedDB in service workers ensures reliable offline access by caching structured data, improving PWA performance and user experience.

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