

## EXPERIMENT NO. 7

### MAD and PWA Lab

**Aim:** To learn about Progressive Web Apps and how they are different from standard websites.

#### Theory:

##### PWA

PWA stands for a progressive web app. This is an app built from the web technologies we all know and love, like HTML, CSS, and JavaScript, but with a feel and functionality that rivals an actual native app. Thanks to a couple of smart additions, you can turn almost any website into a progressive web app. This means that you can build a PWA rather quickly, in regards to a native app that's pretty difficult to develop. Plus, you can offer all the features of native apps, like push notifications, offline support, and much more.

#### Difference Between Websites and PWA

Websites	PWA
<ol style="list-style-type: none"><li>1. Need to be accessed by URLs and/or search engines in a browser.</li><li>2. Offer lesser engagement options since the only interaction is on the website.</li><li>3. Cannot be accessed offline.</li><li>4. Not as good as PWAs in the context of metrics.</li></ol>	<ol style="list-style-type: none"><li>1. Can be directly accessed just like a native application.</li><li>2. Offers more engagement options via popups, push notifications, etc.</li><li>3. Static and cached data can be accessed offline.</li><li>4. Generally perform better with metrics.</li></ol>

#### Benefits of PWA

- You don't have to go through the process to get into different app stores
- You can build PWAs with common web technologies
- They are often cheaper to build
- Since you're turning your site into an app, you'll have fewer code-bases to maintain
- PWAs are responsive and work with many different screen sizes
- PWAs are smooth, fast and lightweight
- No need to hand off big chunks of money to Google and Apple
- They work offline, unlike your regular site
- PWAs are discoverable via search engines (which have a much larger audience than app stores. Plus, if you want you can still get your PWAs distributed via app stores)

- You can use push notifications to re-engage users
- Installing a PWA can lead to higher engagement

### Disadvantages of PWA

- **No Access to App Stores** - The app needs to be installed from its proprietary website.
- **Limited Functionality** - Support for Hardware functionality like Bluetooth, WiFi, NFC etc. is always doubtful since these are always supported better in native apps.
- **Performance** - Since the app essentially runs on a browser client, it'll never be as fast as a native application.

### Code to enable "Add to Home Screen" option

manifest.json:

```
{
  "name": "Omkar Sweets Corner",
  "short_name": "Omkar Sweets",
  "start_url": "/",
  "background_color": "#212529",
  "description": "Your one stop shop for Exclusive Dry fruit Sweets, Mawa Mithai, Bengali Sweets, Top Quality Dry fruits, Wide range of Farsan, Imported Chocolates, Fancy Cakes and Lip Smacking Chat",
  "display": "fullscreen",
  "theme_color": "#212529",
  "icons": [
    {
      "src": "windows11/SmallTile.scale-100.png",
      "sizes": "71x71"
    },
    {
      "src": "windows11/SmallTile.scale-125.png",
      "sizes": "89x89"
    },
    {
      "src": "windows11/SmallTile.scale-150.png",
      "sizes": "107x107"
    },
    {
      "src": "windows11/Square44x44Logo.targetsize-24.png",
      "sizes": "24x24"
    }
  ]
}
```

```
    },
    {
      "src": "android/android-launchericon-512-512.png",
      "sizes": "512x512"
    },
    {
      "src": "android/android-launchericon-192-192.png",
      "sizes": "192x192"
    },
    {
      "src": "android/android-launchericon-144-144.png",
      "sizes": "144x144"
    },
    {
      "src": "android/android-launchericon-96-96.png",
      "sizes": "96x96"
    },
    {
      "src": "android/android-launchericon-72-72.png",
      "sizes": "72x72"
    },
    {
      "src": "android/android-launchericon-48-48.png",
      "sizes": "48x48"
    },
    {
      "src": "ios/16.png",
      "sizes": "16x16"
    },
    {
      "src": "ios/20.png",
      "sizes": "20x20"
    },
    {
      "src": "ios/29.png",
      "sizes": "29x29"
    },
  ],
}
```

## Output



