**Assignment: Chrome Extension with Badge, Popup, and Dynamic Actions**

Build a Chrome extension that dynamically updates the badge, changes its color, and displays relevant information in the popup based on user interaction.

**Requirements**

1. **Features**:
   * onInstalled, extension should open the popup() display first and last letter of your name( yellow color) in badge background color should be random each time when you install it.
   * After 5 seconds of installation extension should Display a **badge** on the extension icon with text representing a count (e.g., "Tasks").
   * Allow the user to **increment** or **reset** the badge count through buttons in the popup.
   * Change the badge’s background color dynamically based on the count:
     + Green (#4CAF50) if count ≤ 5.
     + Orange (#FF9800) if count is between 6 and 10.
     + Red (#F44336) if count > 10.
   * Show the **current badge count** in the popup.
   * Provide a "Clear Badge" button to reset both the badge text and background color.
2. **Structure**:
   * **popup.html**:
     + Contains buttons for "Increment Count," "Clear Badge," and "Reset to Default."
   * **Service Worker**:
     + Handles the logic for badge updates and communicates with the popup.
   * **Manifest.json**:
     + Should define the chrome.action permissions and load the popup.
3. **Design**:
   * Use simple buttons in the popup for user interaction.
   * Display the count dynamically in the popup.  
     Use simple buttons in the popup for user interaction.
4. **Sending Message from popup.js to background.js(service worker)**
   * Search it by your self
5. **Implement some your ideas using chrome.action API**

### ****Step-by-Step Instructions****

#### 1. **Manifest File**

Ensure the manifest file includes:

* action with the popup defined.
* Background script (service worker) for handling logic.

#### 2. **popup.html**

The popup should:

* Display the current count in a readable format.
* Include three buttons:
  1. Increment Count.
  2. Reset Count.
  3. Clear Badge.

#### 3. **Service Worker**

The service worker should:

* onInstalled, extension should open the popup() display first and last letter of your name( yellow color) in badge background color should be random each time when you install it.
* Initialize a default count of 0.
* Handle badge text, background color, and communication with the popup (search it yourself).

#### 4. **Dynamic Badge Update**

Use the chrome.action.setBadgeText and chrome.action.setBadgeBackgroundColor APIs to:

* Dynamically update the badge based on the count.
* Adjust the badge color according to the count range.

#### 5. **Popup Logic**

Implement:

* Button click events in popup.js to send messages to the service worker for badge updates.
* Display the updated count dynamically.