**Assignment 4: Advanced Tab Management Chrome Extension**

**Objective**

Users often struggle with excessive open tabs, duplicate tabs, and managing their browsing sessions efficiently. Your task is to build a Chrome extension that optimizes tab management, prevents tab clutter, and enhances user productivity through automation and customization options.

**Core Functionalities**

The extension should include:

**Tab Management**

✅ Tracking tab updates and activations (onUpdated, onActivated).  
✅ Reloading, pinning/unpinning, and closing tabs.  
✅ Auto-muting all background tabs except the active one.  
✅ Highlighting and grouping tabs.  
✅ Auto-close duplicate tabs.  
✅ Session saving and restoring (save all open tabs and reopen them later).

**User Experience Enhancements**

✅ Storing user preferences using chrome.storage.local and chrome.storage.sync.  
✅ Enabling and disabling the extension’s popup dynamically.  
✅ Displaying a list of all open tabs with search and filtering options.  
✅ Allowing users to close specific tabs directly from the popup UI.  
✅ Keeping a history of visited tab URLs for easy retrieval. (use chrome.storage.local)

**Monitoring and Automation**

✅ Monitoring tab audio activity and indicating which tabs are playing sound.  
✅ Auto-grouping tabs based on domain or custom user-defined rules.  
✅ Auto-reload tabs at user-defined intervals.  
✅ Allowing users to suspend inactive tabs to save memory.

✅ Close all the tabs which are inactive more than 15 minutes

**Requirements**

**1. Manifest File (manifest.json)**

* Define permissions (tabs, storage, background, activeTab).
* Declare the background script, popup UI, and content script.

**2. Background Script (background.js)**

* Listen for chrome.tabs.onUpdated and chrome.tabs.onActivated events.
* Track tab activity and store the data in chrome.storage.local.
* Automatically close duplicate tabs based on URL or title comparison.
* Monitor audio activity and display an indicator in the popup UI.
* Group all tabs ( if title contains words defined by user )

**3. Popup UI (popup.html + popup.js + popup.css)**

* Provide buttons for tab actions (reload, duplicate, mute, pin, close, highlight, group, etc.).
* Display a searchable and filterable list of active tabs.
* Allow users to enable/disable the popup dynamically using chrome.storage.sync.
* Include an option to save and restore sessions.
* Show a history of recently closed or visited tabs.
* Provide settings for auto-reloading, auto-grouping, and auto-muting tabs.
* Allow user to take screenshot of active tab