



Java_Assignment-02

1 Expense Tracker (Personal Finance Management)

Topics Covered:

- ✓ `ArrayList` - Store expenses
- ✓ `LinkedList` - Track monthly history
- ✓ `HashMap` - Category-wise expense tracking
- ✓ `HashSet` - Unique transaction IDs
- ✓ `Sorting` - Sort by amount/date using Lambda
- ✓ `Exception Handling` - Handle invalid inputs
- ✓ `Threads` - Auto-save feature every few seconds
- ✓ `File Handling` - Save/load expenses from a file

Features:

- Add an expense (date, category, amount)
 - View all expenses (sorted by date/amount)
 - View category-wise total expenses
 - Export expenses to a file (`expenses.txt`)
 - Auto-save every 5 seconds using Threads
 - Handle exceptions (e.g., invalid amount input)
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2 Digital Notes App (Like Google Keep)

Topics Covered:

- ✓ `ArrayList` - Store multiple notes
- ✓ `LinkedList` - Keep history of edited notes

- ✓ `HashMap` - Note ID to content mapping
- ✓ `HashSet` - Unique note tags
- ✓ `Sorting` - Sort notes by date
- ✓ `Exception Handling` - Handle invalid note operations
- ✓ `Threads` - Auto-save notes in the background
- ✓ `File Handling` - Save/load notes from `notes.txt`

Features:

- Create, edit, delete notes
 - Tag notes (e.g., `#Java`, `#ToDo`)
 - Search notes by keyword
 - Sort notes by last modified time
 - Auto-save feature using `Threads`
 - Export/import notes using `File Handling`
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3 Smart Contacts Directory

Topics Covered:

- ✓ `ArrayList` - Store contacts
- ✓ `LinkedList` - Maintain call history
- ✓ `HashMap` - Store contact names with numbers
- ✓ `HashSet` - Unique phone numbers
- ✓ `Sorting` - Sort contacts alphabetically
- ✓ `Exception Handling` - Handle duplicate contacts
- ✓ `Threads` - Auto-backup contacts
- ✓ `File Handling` - Save contacts in `contacts.txt`

Features:

- Add, edit, delete contacts
- Search a contact by name/number

- Sort contacts alphabetically
 - Prevent duplicate contacts (using HashSet)
 - Auto-backup contacts every 10 seconds
 - Export contacts to a file
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4 Task Manager (To-Do List)

Topics Covered:

- ✓ `ArrayList` - Store tasks
- ✓ `LinkedList` - Track completed tasks
- ✓ `HashMap` - Store task ID and details
- ✓ `HashSet` - Unique task categories
- ✓ `Sorting` - Sort tasks by priority
- ✓ `Exception Handling` - Handle missing tasks
- ✓ `Threads` - Auto-reminders every minute
- ✓ `File Handling` - Save tasks in `tasks.txt`

Features:

- Add, edit, remove tasks
 - Mark tasks as completed
 - Sort tasks by deadline/priority
 - Auto-reminders (Thread runs every 60 seconds)
 - Save and load tasks from a file
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5 Online Shopping Cart (Like Amazon)

Topics Covered:

- ✓ `ArrayList` - Store items in the cart
- ✓ `LinkedList` - Track order history
- ✓ `HashMap` - Store item ID and details

- ✓ `HashSet` - Unique order IDs
- ✓ `Sorting` - Sort products by price/rating
- ✓ `Exception Handling` - Handle out-of-stock errors
- ✓ `Threads` - Process checkout asynchronously
- ✓ `File Handling` - Save order details in `orders.txt`

Features:

- Add/remove items from cart
 - Sort items by price or rating
 - Checkout (generate an invoice)
 - Auto-save orders every 5 seconds
 - Save order history to a file
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6 Weather Tracker App

Topics Covered:

- ✓ `ArrayList` - Store temperature records
- ✓ `LinkedList` - Maintain historical weather data
- ✓ `HashMap` - Store city-wise temperatures
- ✓ `HashSet` - Unique city names
- ✓ `Sorting` - Sort cities by temperature
- ✓ `Exception Handling` - Handle invalid city input
- ✓ `Threads` - Auto-update weather every minute
- ✓ `File Handling` - Save weather data in `weather.txt`

Features:

- View weather of a city
- Track past temperatures
- Sort cities by highest/lowest temperature
- Auto-update weather every 60 seconds

- Save and load weather data from a file

Summary

Project	Real-Life Use Case	Main Topics Covered
1. Expense Tracker	Track personal finances	ArrayList, HashMap, Sorting, Threads, File Handling
2. Digital Notes App	Organize notes efficiently	LinkedList, Sorting, File Handling, Exception Handling
3. Smart Contacts Directory	Manage contacts effectively	HashMap, HashSet, Sorting, Threads, File Handling
4. Task Manager	Plan & manage tasks	ArrayList, HashMap, Sorting, Threads, File Handling
5. Online Shopping Cart	Simulate an e-commerce cart	ArrayList, HashMap, Threads, File Handling
6. Weather Tracker App	Monitor city temperatures	HashMap, HashSet, Sorting, Threads, File Handling