Assignments Collection Project

1. **Design a Project where there should be a List of Shirts(brand, price, colour, size).**
   List<Shirt> l1=new ArrayList<>();
   Now

   a. Access all shirts
   b. Access all shirts of Arrow brand
   c. Access all shirts of blackberry and size 42
   d. Access all shirts of price <=2500
   e. Access all shirts of size 40 and price>2000
   f. Sort all shirts on size low to high
   g. Sort all shirts on size high to low
   h. Sort all shirts on price low to high
   i. Sort all shirts on price high to low
   j. Sort all shirts on brands on ascending order of alphabets

k. Sort all shirts on brands on descending order of alphabets
l. Sort all shirts on price low to high, if price is same then sort on size low to high
m. Sort all shirts on price low to high, if price is same then sort on brand in ascending order of alphabets
n. Sort all shirts on brands on ascending order of alphabets, if brands are same then sort on price low to high
o. Sort all shirts on brands on descending order, if brands are same then sort on price high to low
p. List all the brands available
q. List all the size available
r. List all the colour available
s. Count the number of shirts available for a particular brand as per user input
t. Count the number of shirts available for a particular colour
u. Count the number of shirts available for a particular size
v. Count the number of shirts available in each brand
w. Count the number of shirts available in each size
x. Count the number of shirts available in each colour

2. **Design a Project where there should be a List of Car(brand, price, colour, manufacturingYear).**
   List<Car> l1=new ArrayList<>();
   Now
   a. Access all Cars
   b. Access all cars of tata brand
   c. Access all cars of maruti brand and price<=800000
   d. Access all cars of price <=600000
   e. Access all cars of year 2015 and newer of tata brand in white colour
   f. Sort all cars on price low to high
   g. Sort all cars on price high to low
   h. Sort all cars on year of manufacturing from new to old order
   i. List all the brands of car available
   j. Count the number of cars available for a particular brand
   k. Count the number of cars available in all brands
   l. Count the number of Car available in from each manufacturing years
   m. Count the number of cars available in each color

3. Design a Project for Music Player where there should be a List of Songs(title, artist, releaseYear, size). List<Song> l1=new ArrayList<>();

Now

a. Access all songs.
b. Access all songs of provided title
c. Access all songs of provided artist
d. Sort all songs in alphabetical order from a to z
e. Sort all songs in alphabetical order from z to a
f. Sort all songs based on size in increasing order
g. Sort all songs based on size in decreasing order
h. Access all songs of a particular year

4. **Design a Project for E-Commerce app to perform CRUD operations on Products(Shirt, TShirt, Jeans, Mobile, Laptop, AirConditioner, Fridge, etc).**
   Appropriate access should be provided to Admin Profile and user Profile.

```
class Product{
        String category;
        String brand;
        double price;
}
class Shirt extends Product{
        String subCategory;
        int size;
        String color;
        String type;//half or full
}
```

```
Map<String, Product> m1=new HashMap<>();
```

String is for ProductId

Admin Access:

1) Store products
2) Remove a product with given ProductId
3) Count all Mobile Products
4) Count all Shirt Products

5) Count all Shirt Products of size 40
6) Print and count all the different types of products available
7) Print the count of each types of Products available {eg: Mobile->4, Shirt->5 ..etc}
8) List all the brands available
9) List all the size available in shirt
10) List all different type products available
11) Count the number of shirts available for a particular brand as per user input
12) Count the number of shirts available in each brand
13) Count the number of shirts available in each size
14) Count the number of shirts available in each colour
15) Fetch all products by its category
16) Fetch all products by its subCategory
17) Print all the categories
18) Count how many total categories are available
19) Print all the subCategories for every Category
20) Count how many subCategories are available for every category

User Access:

1) Access all Products
2) Access all shirt Products (Use instanceof keyword in loop)
3) Access all Mobile Products
4) Access all TShirt Products

5) Access all shirts of blackberry and size 42
6) Access all shirts of size 40 and price>2000
7) Sort all shirts on price low to high
8) Sort all shirts on price high to low
9) Sort all Mobile on price low to high
10) Sort all Mobiles on price High to Low
11) Access all the products as per provided category
12) Access all the products as per provided sub-category

Content for resume:

Project: E-Commerce Application Backend

Technologies Used: Core Java, Collections (HashMap), OOPs, Exception Handling, Generics

Description:
Developed a backend system for an **E-Commerce application** to manage products efficiently using **HashMap (ProductId → Product)** for CRUD operations. Implemented **category-based filtering, sorting (price low-to-high/high-to-low), and product aggregation** using Core Java and Data Structures.

Key Features:
✓ CRUD operations on various product types (Shirts, Mobiles, Laptops, etc.)
✓ Product filtering for type-based retrieval
✓ Sorting products based on price (ascending & descending)
✓ Aggregated product counts by category, brand, size, and color
✓ Efficient product retrieval and removal using ProductId

This project demonstrates **data handling, optimized search, and structured inventory management** using Java Collections.

|==========END==========|