**TASK 3**

**E-COMMERCE PLATFORM SEARCH FUNCTION**

**Product.java**

package e\_commerce\_platform\_search\_function;

public class Product {

int pid;

String productName, category;

public Product(int pid, String productName, String category) {

this.pid = pid;

this.productName = productName;

this.category = category;

}

public int getPid() {

return pid;

}

public String getProductName() {

return productName;

}

public String getCategory() {

return category;

}

@Override

public String toString() {

return "Product ID: " + pid + ", Name: " + productName + ", Category: " + category;

}

}

**Search.java:**

package e\_commerce\_platform\_search\_function;

import java.util.\*;

public class Search {

static int *s* = -1;

public static void main(String[] args) {

Scanner scan = new Scanner(System.*in*);

Product arr[] = new Product[15];

while (true) {

System.*out*.println("\n--- MENU ---");

System.*out*.println("1. Add Product");

System.*out*.println("2. Display All Products");

System.*out*.println("3. Linear Search by Name");

System.*out*.println("4. Binary Search by Name");

System.*out*.println("5. Exit");

System.*out*.print("Enter Choice: ");

int n = scan.nextInt();

scan.nextLine();

switch (n) {

case 1:

if (*s* == 14) {

System.*out*.println("Product array full.");

break;

}

System.*out*.print("Enter Product ID: ");

int pid = scan.nextInt();

scan.nextLine();

System.*out*.print("Enter Product Name: ");

String name = scan.nextLine();

System.*out*.print("Enter Product Category: ");

String category = scan.nextLine();

arr[++*s*] = new Product(pid, name, category);

System.*out*.println("Product added!");

break;

case 2:

if (*s* == -1) {

System.*out*.println("No products to display.");

} else {

for (int i = 0; i <= *s*; i++) {

System.*out*.println(arr[i]);

}

}

break;

case 3:

System.*out*.print("Enter product name to search: ");

String key = scan.nextLine();

boolean found = false;

for (int i = 0; i <= *s*; i++) {

if (arr[i].getProductName().equalsIgnoreCase(key)) {

System.*out*.println("Found: " + arr[i]);

found = true;

break;

}

}

if (!found)

System.*out*.println("Product not found (Linear Search).");

break;

case 4:

if (*s* == -1) {

System.*out*.println("No products to search.");

break;

}

Arrays.*sort*(arr, 0, *s* + 1, Comparator.*comparing*(p -> p.getProductName().toLowerCase()));

System.*out*.print("Enter product name to search: ");

String searchKey = scan.nextLine();

int low = 0, high = *s*, mid;

boolean binaryFound = false;

while (low <= high) {

mid = (low + high) / 2;

int result = arr[mid].getProductName().compareToIgnoreCase(searchKey);

if (result == 0) {

System.*out*.println("Found: " + arr[mid]);

binaryFound = true;

break;

} else if (result < 0)

low = mid + 1;

else

high = mid - 1;

}

if (!binaryFound)

System.*out*.println("Product not found (Binary Search).");

break;

case 5:

System.*out*.println("Exiting...");

scan.close();

return;

default:

System.*out*.println("Invalid choice.");

}

}

}

}

**OUTPUT:**

--- MENU ---

1. Add Product

2. Display All Products

3. Linear Search by Name

4. Binary Search by Name

5. Exit

Enter Choice: 1

Enter Product ID: 101

Enter Product Name: Laptop

Enter Product Category: Electronics

Product added!

--- MENU ---

1. Add Product

2. Display All Products

3. Linear Search by Name

4. Binary Search by Name

5. Exit

Enter Choice: 1

Enter Product ID: 102

Enter Product Name: Mouse

Enter Product Category: Accessories

Product added!