DATA STRUCTURES AND ALGORITHMS MANDATORY HANDS-ON

Exercise 2: E-commerce Platform Search Function

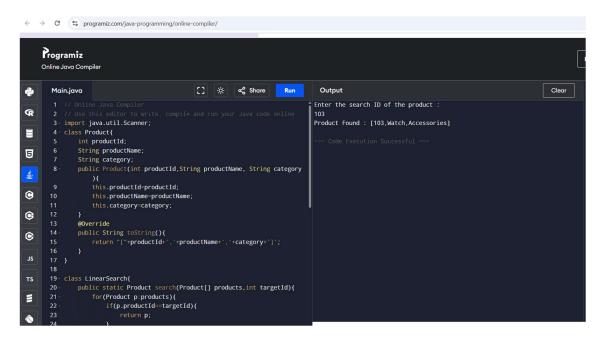
Main.java:

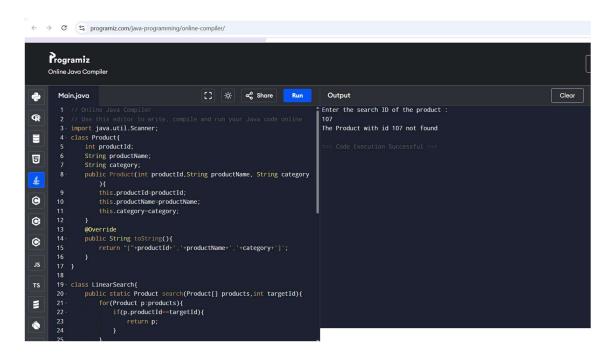
```
import java.util.Scanner;
class Product{
  int productId;
  String productName;
  String category;
  public Product(int productId,String productName, String category){
     this.productId=productId;
     this.productName=productName;
     this.category=category;
  }
  @Override
  public String toString(){
     return "["+productId+','+productName+','+category+']';
}
class LinearSearch{
  public static Product search(Product[] products,int targetId){
     for(Product p:products){
       if(p.productId==targetId){
         return p;
    return null;
```

```
public class Main {
  public static void main(String[] args) {
    //System.out.println("Try programiz.pro");
     Product[] products = {
       new Product(101, "T-Shirt", "Fashion"),
       new Product(102, "Shoes", "Footwear"),
       new Product(103, "Watch", "Accessories"),
       new Product(104, "Laptop", "Electronics"),
       new Product(105, "Kurta Set", "Clothing"),
       new Product(106, "Bangles", "Jewellery"),
     };
     Scanner s = new Scanner(System.in);
     int searchId;
     System.out.println("Enter the search ID of the product:");
    searchId=s.nextInt();
     Product result = LinearSearch.search(products,searchId);
    if(result!=null){
       System.out.println("Product Found : "+result);
     }
    else {
       System.out.println("The Product with id "+searchId+" not found");
     }
  }
}
```

}

OUTPUT:





Exercise 7: Financial Forecasting

Forecasting.java

```
//to calculate future value using FV=PV*(1+r)^n
import java.util.*;
public class Forecasting
  public static double forecast(double presentValue, double rate, int years){
     if(years==0){
       return presentValue;
     }
     return forecast(presentValue,rate,years-1)*(1+rate);
  }
       public static void main(String[] args) {
               System.out.println("Enter the present Value: ");
               Scanner s = new Scanner(System.in);
               double presentValue=s.nextDouble();
               System.out.println("Enter the annual growth rate: ");
               double rate = s.nextDouble(); //annual growth rate
               System.out.print("Enter the no. of years: ");
               int years=s.nextInt();
               double futureValue=forecast(presentValue,rate,years);
               System.out.printf("Future value after %d years: $\%.3f\n", years,
futureValue);
               //System.out.println("Future value after "+years+" years : $"+futureValue);
       }
}
```

OUTPUT:

OUTPUT

Enter the present Value :

10506

Enter the annual growth rate:

0.17

Enter the no. of years: 7

Future value after 7 years: \$31531.050