**JAVA CORE ASSSIGNMENTS**

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**ASSIGNMENT NO- 3**

import java.util.\*;

public class EmployeeTest

{

public static void main(String []args){ **//Driver Class**

Scanner sc=new Scanner(System.in);

System.out.println("Enter number of Employee records you want to store");

int n=sc.nextInt();

EmployeeDetails ed=new EmployeeDetails(n);

ed.read();

ed.calSalary();  **//calling of functions**

ed.bonus();

ed.display();

}

}

class EmployeeDetails{

Scanner sc=new Scanner(System.in);

int e;  **//EmployeeDetails class**

EmployeeDetails(int t){

e=t;

}

int []id=new int[10];

String[]name=new String[10];

double[]salary=new double[10];

double[]total\_salary=new double[10];

String[]desg=new String[10];

void read(){

for(int i=0;i<e;i++){

System.out.println("Enter Id");

id[i]=sc.nextInt();  **//read() function**

sc.nextLine();

System.out.println("Enter Name");

name[i]=sc.nextLine();

System.out.println("Enter Salary");

salary[i]=sc.nextDouble();

total\_salary[i]=salary[i];

sc.nextLine();

System.out.println("Enter Designation");

desg[i]=sc.next();

System.out.println("---------------------------------------------");

}

}

void calSalary()

{

for(int i=0;i<e;i++){ **//salarycalculate() function**

double hra,da,pf;

hra=salary[i]\*0.1;

da=salary[i]\*0.07;

pf=salary[i]\*0.05;

salary[i]+=hra+da-pf;

}

}

void bonus()

{

for(int i=0;i<e;i++){

double hra,da,pf,perks;

hra=salary[i]\*0.1;  **//bonus() function**

da=salary[i]\*0.07;

pf=salary[i]\*0.05;

String d=desg[i].toLowerCase();

if(d.equals("manager"))

{

perks=salary[i]\*0.15;

}

else if(d.equals("developer"))

{

perks=salary[i]\*0.10;

}

else{

perks=salary[i]\*0.05;

}

salary[i]+=hra+perks+da-pf;

}

}

void display()

{

for(int i=0;i<e;i++)

{  **//display() method**

System.out.println("Id of Employee is : "+ id[i]);

System.out.println("Name of Employee is : "+ name[i]);

System.out.println("Salary of Employee is : "+ salary[i]);

System.out.println("Desgination of Employee is : "+ desg[i]);

System.out.println("---------------------------------------------");

}

}

}

}

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**ASSIGNMENT-4**

import java.util.\*;

public class Main

{

public static void main(String[] args) {

System.out.println("The manager details are : ");  **//Driver function**

Manager mgr=new Manager();

mgr.read();

mgr.readMgr();

System.out.println("The Programmer details are : ");

Programmer prg=new Programmer();

prg.read();

prg.readPrg();

mgr.calSalary();

prg.calSalary();

mgr.display();

mgr.disMgr();

prg.display();

prg.disPrg();

}

}

class Employee{

int id;

String name;

double salary;

Scanner sc=new Scanner(System.in);  **//Employee class**

Address add=new Address();

void read(){

System.out.println("Enter Id of Employee : ");

id=sc.nextInt();

sc.nextLine();

System.out.println("Enter Name of Employee : ");

name=sc.nextLine();

System.out.println("Enter Salary of Employee : ");

salary=sc.nextDouble();

}

void calSalary(){

double hra,da,pf;

hra=salary\*0.1;

da=salary\*0.07;

pf=salary\*0.05;

salary+=hra+da-pf;

}

void display(){

System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_");

System.out.println("ID is : "+ id);

System.out.println("Name is : "+ name);

System.out.println("Salary is : "+ salary);

}

}

class Manager extends Employee{

int number\_of\_employees;

void readMgr(){

System.out.println("Enter number of Employees");

number\_of\_employees=sc.nextInt();  **//Manager class**

add.readAdd();

}

void disMgr(){

System.out.println("Number of employees is : "+ number\_of\_employees);

add.disAdd();

}

}

class Programmer extends Employee{

String project\_name;

void readPrg(){  **//Programmer class**

System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_");

sc.nextLine();

System.out.println("Enter the Project Name");

project\_name=sc.nextLine();

add.readAdd();

}

void disPrg(){

System.out.println("The Project Name is :" + project\_name);

add.disAdd();

}

}

class Address{

Scanner sc=new Scanner(System.in);

String city;

String state;  **//Address class**

int pincode;

void readAdd(){

System.out.println("Enter City : ");

city=sc.nextLine();

System.out.println("Enter State : ");

state=sc.nextLine();

System.out.println("Enter Pincode : ");

pincode=sc.nextInt();

}

void disAdd(){

System.out.println("City :"+ city);

System.out.println("State :"+ state);

System.out.println("Pincode :"+ pincode);

}

}

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**ASSIGNMENT NO- 5**

import java.util.\*;

public class Main

{

public static void main(String[] args) {

**//Driver Function**

Scanner sc=new Scanner(System.in);

System.out.println("Enter how many Student Details you want to store:");

int n=sc.nextInt();

Student std[]=new Student[n];

for(int i=0;i<n;i++){

std[i]=new Student();

std[i].read();

}

for(int i=0;i<n;i++){

std[i].calGrade();

}

for(int i=0;i<n;i++){

std[i].display();

}

}

}

class Student{

int sId;

String sName;

int age; **//Student Class**

int marks[]=new int[4];

String Grade;

Scanner sc=new Scanner(System.in);

void read(){

System.out.println("Enter student Details :");

System.out.println("Enter student Id :");

sId=sc.nextInt();

sc.nextLine();

System.out.println("Enter student Name :");

sName=sc.nextLine();

System.out.println("Enter student Age :");

age=sc.nextInt();

System.out.println("Enter Marks obtained by student in each subject- Physcis,chemistry, Maths and Biology: ");

for(int i=0;i<marks.length;i++){

marks[i]=sc.nextInt();

}

}

void calGrade(){

int total=0; **//Grade Calculate function**

double avg;

for(int i=0;i<marks.length;i++){

total+=marks[i];

}

avg=total/4;

if(avg>90){

Grade= "A+";

}

else if(avg>80)

{

Grade="A";

}

else if(avg>70){

Grade="B";

}

else if(avg>55){

Grade="C";

}

else{

Grade="D";

}

}

void display(){

System.out.println("------------------------------------"); **//Display Function**

System.out.println("Id is: "+ sId);

System.out.println("Name is: "+ sName);

System.out.println("Age is: "+ age);

System.out.println("Grade is: "+ Grade);

}

}

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**ASSIGNMENT NO- 6**

import java.util.Scanner;

package com.service;

import com.bean.Account;

abstract class AccountInitialization

{

public static int accountcount=0,accountcount1=0,i=0,j=0;

public static int accno=100;

public static int accno1=100;

public String name;

public int amount;

public Account accounts[]=new Account[10];

void accountcreate()

{

if(accountcount<10)

{

name="Unknown";

amount=500;

accounts[i]=new Account(accno,name,amount);

accno++;

i++;

accountcount++;

}

else

{

accountcount1=1;

System.out.println("Account Limit exceeded.");

}

}

void accountcreate(String name,int amount)

{

if(accountcount1<10)

{

if(amount>500)

{

this.name=name;

this.amount=amount;

accounts[j].setaccno(this.accno1);

accounts[j].setname(this.name);

accounts[j].setamount(this.amount);

System.out.println("Name="+accounts[j].getname());

System.out.println("Account Number="+accounts[j].getaccno());

System.out.println("Amount="+accounts[j].getamount());

accountcount1++;

accno1++;

j++;

}

else

{

System.out.println("Amount should be greater than 500.");

}

}

else

{

System.out.println("Account Limit exceeded.");

}

}

abstract void transfer(int fromaccno,int toaccno,int amount);

}

package com.service;

interface Bank

{

void withdraw(int accno,int amount);

void deposit(int accno,int amount);

void checkbalance(int accno);

}

package com.bean;

class Account

{

private int accno;

private String name;

private int amount;

public Account(int accno, String name, int amount)

{

this.accno=accno;

this.name=name;

this.amount=amount;

}

public void setname(String name)

{

this.name=name;

}

public void setaccno(int accno)

{

this.accno=accno;

}

public void setamount(int amount)

{

this.amount=amount;

}

public String getname()

{

return name;

}

public int getaccno()

{

return accno;

}

public int getamount()

{

return amount;

}

}

class MyException extends Exception

{

MyException()

{

super();

}

MyException(String msg)

{

super(msg);

}

}

package com.service;

class MyBank extends AccountInitialization implements Bank

{

public void transfer(int fromaccno, int toaccno,int amount)

{

if(accountcount!=0)

{

for(i=0;i<10;i++)

{

try

{

if(accounts[i].getaccno()==fromaccno)

{

for(int j=0;j<10;j++)

{

try

{

if(accounts[j].getaccno()==toaccno)

{

if(accounts[i].getamount()-amount>500)

{

accounts[i].setamount(accounts[i].getamount()-amount);

accounts[j].setamount(accounts[j].getamount()+amount);

break;

}

else

{

System.out.println("Minimum balance 500 should be maintained.");

}

}

throw new MyException("to account number not matched");

}

catch(MyException e)

{

System.out.println(e.toString());

break;

}

}

break;

}

throw new MyException("from account number not matched");

}

catch(MyException e){

System.out.println(e.toString());

break;

}

}

}

else

{

System.out.println("Account is not created yet. You should Create Your account first");

}

}

public void withdraw(int accno1,int amount1)

{

if(accountcount!=0)

{

for(int i=0;i<10;i++)

{

try

{

if(accounts[i].getaccno()==accno1)

{

if((accounts[i].getamount()-amount1)>500)

{

accounts[i].setamount(accounts[i].getamount()-amount1);

System.out.println("Amount withdrawn successfully");

break;

}

else

{

System.out.println("Minimum balance 500 should be maintained.");

}

}

throw new MyException("Account mismatch");

}

catch(MyException e){

System.out.println(e.toString());

break;

}

}

}

else

{

System.out.println("Account is not Created. Create your account first.");

}

}

public void deposit(int accno1, int amount1)

{

if(accountcount!=0)

{

for(int i=0;i<10;i++)

{

try

{

if(accounts[i].getaccno()==accno1)

{

if(amount1<50000)

{

accounts[i].setamount(accounts[1].getamount()+amount1);

System.out.println("Amount Deposited successfully.");

}

else

{

System.out.println("Amount is more than 50000. Pancard is compulsary.");

break;

}

}

throw new MyException("Account mismatch");

}

catch(MyException e){

System.out.println(e.toString());

break;

}

}

}

else

{

System.out.println("Account is not created. create your account first.");

}

}

public void checkbalance(int accno1)

{

if(accountcount!=0)

{

for(int i=0;i<10;i++)

{

try

{

if(accounts[i].getaccno()==accno1)

{

System.out.println("Available Balance:"+accounts[i].getamount());

break;

}

throw new MyException("Account mismatch");

}

catch(MyException e){

System.out.println(e.toString());

break;

}

}

}

else

{

System.out.println("Account is not Created. Create your account first.");

}

}

}

import com.service.MyBank;

class BankTestApp

{

public static void main(String args[])

{

System.out.println("Welcome to Bank Application");

Scanner sc=new Scanner(System.in);

String name;

boolean flag=true;

int accno, toaccno,amount;

MyBank mybank=new MyBank();

do

{

System.out.println("Press 1 for Create Account\nPress 2 for check Account Balance\nPress 3 for withdraw the amount\nPress 4 for Deposit\nPress 5 for Transfer\nPress 6 for exit the Application: ");

int choose= sc.nextInt();

switch(choose)

{

case 1:

System.out.println("Press 1 for Default details\nPress 2 for name and Amount pass:");

int ch=sc.nextInt();

switch(ch)

{

case 1: mybank.accountcreate();

break;

case 2: System.out.println("Enter Name:");

name=sc.next();

System.out.println("Enter amount:");

amount=sc.nextInt();

mybank.accountcreate(name,amount);

break;

default:

System.out.println("Invalied choice.");

}

case 2: System.out.println("For Check Balance");

System.out.println("Enter Account Number:");

accno=sc.nextInt();

mybank.checkbalance(accno);

break;

case 3: System.out.println("Withdraw Money");

System.out.println("Enter Account Number:");

accno=sc.nextInt();

System.out.println("Enter Amount:");

amount=sc.nextInt();

mybank.withdraw(accno,amount);

break;

case 4: System.out.println("Deposit Money");

System.out.println("Enter Account Number:");

accno=sc.nextInt();

System.out.println("Enter Amount:");

amount=sc.nextInt();

mybank.deposit(accno,amount);

break;

case 5: System.out.println("Transfer Money");

System.out.println("Enter Your Account Number:");

accno=sc.nextInt();

System.out.println("Enter Account Number to be transfered:");

toaccno=sc.nextInt();

System.out.println("Enter Amount to be transfered:");

amount=sc.nextInt();

mybank.transfer(accno,toaccno,amount);

break;

case 6: System.out.println("Thank you for using this bank");

value=false;

break;

default:

System.out.println("invalid choice.");

}

}while(flag);

}

}}

**ASSIGNMENT NO- 7**

import java.util.\*;

public class Main

{

public static void main(String[] args) {

System.out.println("Enter the no of Names you want :"); **//Driver function**

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

String []names=new String[n];

System.out.println("Enter the Names :");

sc.nextLine();

for(int i=0;i<n;i++){

names[i]=sc.nextLine();

}

String temp;

for(int i=0;i<n;i++){

for(int j=i+1;j<n;j++){ **//Using compareTo() method**

if(names[i].compareToIgnoreCase(names[j])>0){

temp=names[i];

names[i]=names[j];

names[j]=temp;

}

}

}

System.out.println("---------------------------");

System.out.println("Names in ascending order :"); **//Display in Ascending order**

for(int i=0;i<n;i++){

System.out.println(names[i]);

}

}

}

**ASSIGNMENT NO- 8**

**package** com;

**import** java.util.ArrayList;

**import** java.util.Collections;

**import** java.util.Comparator;

**import** java.util.List;

**import** java.util.Scanner;

**public** **class** Mainclass {

**public** **static** **void** main(String[] args) {

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

System.***out***.println("Enter number of Employee records you want to store");

**int** n = sc.nextInt();

**boolean** flag = **true**;

**//Driver class**

List<Employee> employee = **new** ArrayList<>();

System.***out***.println("Enter employee details :");

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

employee.add(**new** Employee(0, **null**, 0));

}

**do** {

System.***out***.println("choose how you want to sort : ");

sc.nextLine();

System.***out***.println("1. ById\n2. ByName\n3. BySalary\n4. Exit");

**int** choice = sc.nextInt();

**switch** (choice) {

**case** 1:

System.***out***.println("in 1. Ascending OR 2. Descending");

**int** ch = sc.nextInt();

**if** (ch == 1)

Collections.*sort*(employee, **new** SortByIdAsc());

**else** **if** (ch == 2) **//Sorting By Id**

Collections.*sort*(employee, **new** SortByIdDsc());

**else** {

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

Continue;

}

**break**;

**case** 2:

System.***out***.println("in 1. Ascending OR 2. Descending");

**int** ch1 = sc.nextInt();

**if** (ch1 == 1)

Collections.*sort*(employee, **new** SortByNameAsc()); **//Sorting By Name**

**else** **if** (ch1 == 2)

Collections.*sort*(employee, **new** SortByNameDsc());

**else** {

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

Continue;

}

**break**;

**case** 3:

System.***out***.println("in 1. Ascending OR 2. Descending");

**int** ch2 = sc.nextInt();

**if** (ch2 == 1)

Collections.*sort*(employee, **new** SortBySalaryAsc()); **//Sorting By Salary**

**else** **if** (ch2 == 2)

Collections.*sort*(employee, **new** SortBySalaryDsc());

**else** {

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

Continue;

}

**break**;

**case** 4:

System.***out***.println("Thank you !! Have a Nice Day ");

value = **false**;

System.*exit*(0);

**break**;

**default**:

System.***out***.println("Wrong choice,choose proper option");

}

employee.forEach(System.***out***::println);

} **while** (flag);

}

}

**class** SortByIdAsc **implements** Comparator<Employee> {

@Override

**public** **int** compare(Employee o1, Employee o2) {

**return** o1.getId() - o2.getId();

}

}

**class** SortByIdDsc **implements** Comparator<Employee> {

@Override

**public** **int** compare(Employee o1, Employee o2) {

**return** o2.getId() - o1.getId();

}

}

**class** SortByNameAsc **implements** Comparator<Employee> {

@Override

**public** **int** compare(Employee o1, Employee o2) {

**return** o1.getName().compareTo(o2.getName());

}

}

**class** SortByNameDsc **implements** Comparator<Employee> {

@Override

**public** **int** compare(Employee o1, Employee o2) {

**return** o2.getName().compareTo(o1.getName());

}

}

**class** SortBySalaryAsc **implements** Comparator<Employee> {

@Override

**public** **int** compare(Employee o1, Employee o2) {

**return** (**int**) (o1.getSalary() - o2.getSalary());

}

}

**class** SortBySalaryDsc **implements** Comparator<Employee> {

@Override

**public** **int** compare(Employee o1, Employee o2) {

**return** (**int**) (o2.getSalary() - o1.getSalary());

}

}

**package** com;

**import** java.util.Scanner;

**public** **class** Employee {

private **int** id;

private String name;

private **float** salary;

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

**public** Employee(**int** id, String name, **float** salary) {

System.***out***.println("Enter Id :");

**this**.id = sc.nextInt(); **//Employee class**

sc.nextLine();

System.***out***.println("Enter Name :");

**this**.name = sc.nextLine();

System.***out***.println("Enter Salary : ");

**this**.salary = sc.nextFloat();

}

**public** String toString() {

**return** "Employee [id=" + id + ", name=" + name + ", salary=" + salary + "]";

}

**public** **int** getId() {

**return** id;

}

**public** **void** setId(**int** id) {

**this**.id = id;

}

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**public** **float** getSalary() {

**return** salary;

}

**public** **void** setSalary(**float** salary) {

**this**.salary = salary;

}

**public** **int** compareTo(Employee o) {

**return** **this**.id - o.id;

}

}

**ASSIGNMENT NO- 9**

1. **Convert all file information in upper case in target file.**
2. **package** com;
3. **import** java.io.FileReader;
4. **import** java.io.FileWriter;
5. **public** **class** CharacterWiseFileOp {
6. **public** **static** **void** main(String[] args) **throws** Exception {
7. FileReader fr = **new** FileReader("info.txt");
8. FileWriter fw = **new** FileWriter("D:\\infodetails.txt");
9. **int** ch;
10. **while** ((ch = fr.read()) != -1) {
11. if (Character.isLowerCase(ch)) {
12. ch = Character.toUpperCase(ch); //Converting into upper case
13. }


17. fw.write(ch);
18. }
19. fr.close();
20. fw.close();
21. System.***out***.println("File copied...");
22. }
23. }

2.  **Convert all file information in lower case in target file**

**package** com;

**import** java.io.FileReader;

**import** java.io.FileWriter;

**public** **class** CharacterWiseFileOp {

**public** **static** **void** main(String[] args) **throws** Exception {

FileReader fr = **new** FileReader("info.txt");

FileWriter fw = **new** FileWriter("D:\\infodetails.txt");

**int** ch;

**while** ((ch = fr.read()) != -1) {

**if** (Character.*isUpperCase*(ch)) {

ch = Character.*toLowerCase*(ch); //Converting into lower case

}

fw.write(ch);

}

fr.close();

fw.close();

System.***out***.println("File copied Successfully...");

}

}

**3. Convert all sentence first letter in upper case.**

**package** com;

**import** java.io.BufferedReader;

**import** java.io.InputStreamReader;

**public** **class** CharacterWiseFileOp {

**public** **static** **void** main(String[] args) **throws** Exception {

BufferedReader br = **new** BufferedReader(**new** InputStreamReader(System.***in***));

System.***out***.println("enter the text");

String str;

str = br.readLine();

**char** ch[] = str.toCharArray();

**for** (**int** i = 0; i < str.length(); i++) {

**if** ((i == 0 && ch[i] != ' ') || (ch[i - 1] == '.') || (ch[i - 1] == ',')) {

**if** (ch[i] >= 'a' && ch[i] <= 'z') {

ch[i] = (**char**) (ch[i] - 'a' + 'A');

}

}

}

String st = **new** String(ch);

System.***out***.println(st);

}

}

1. **Display number of character present in file.**

**package** com;

**import** java.io.BufferedReader;

**import** java.io.InputStreamReader;

**public** **class** CharacterWiseFileOp {

**public** **static** **void** main(String[] args) **throws** Exception {

BufferedReader br = **new** BufferedReader(**new** InputStreamReader(System.***in***));

String str;

**int** charcount = 0;

System.***out***.println("enter the text");

**while** ((str = br.readLine()) != **null**) {

str = str.replaceAll("\\s", "");

charcount += str.length();

System.***out***.println(charcount);

}

}

}

1. **Display no of words present in File.**

**package** com;

**import** java.io.BufferedReader;

**import** java.io.InputStreamReader;

**public** **class** CharacterWiseFileOp {

**public** **static** **void** main(String[] args) **throws** Exception {

BufferedReader br = **new** BufferedReader(**new** InputStreamReader(System.***in***));

String str;

System.***out***.println("enter the text");

**int** count = 0;

str = br.readLine();

**char** ch[] = **new** **char**[str.length()];

**for** (**int** i = 0; i < str.length(); i++) {

ch[i] = str.charAt(i);

**if** (((i > 0) && (ch[i] != ' ') && (ch[i - 1] == ' ')) || ((ch[0] != ' ') && (i == 0)))

count++;

}

System.***out***.println(count);

}

}

**ASSIGNMENT NO- 10**

(SPRINT -2)

**package** com;

**import** java.io.FileInputStream;

**import** java.io.ObjectOutputStream;

**import** java.util.ArrayList;

**import** java.util.Iterator;

**import** java.util.List;

**import** java.util.Scanner;

**import** bean.Product;

**import** server.ProductService;

**public** **class** ProductOperation {

**public** **static** **void** main(String[] args) {

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

List<Product> al = **new** ArrayList<>();

**boolean** flag = **true**;

**int** id = 0;

String name = **null**;

**double** price = 0.0;

**int** count = 0;

Product p = **new** Product(id, name, price);

ObjectOutputStream out = **new** ObjectOutputStream(**new** FileInputStream("productobjectfile.txt"));

out.writeObject(p);

ProductService ps = **new** ProductService();

**try** {

System.***out***.println("Welcome to Sprint 2:Product operation and Management");

**do** {

System.***out***.println("Enter the operation you want to perform for the product");

System.***out***.println("1. Add\n2. Update\n3. Delete\n4. DisplayAll\n5. Find Price Using Id\n6. Exit");

**int** choice = sc.nextInt();

**switch** (choice) {

**case** 1:

**try** {

System.***out***.println("You are going to perform Addition of product");

System.***out***.println("Enter how many products you want to add : ");

**int** n = sc.nextInt();

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

count++;

id++;

sc.nextLine();

System.***out***.println("Enter the product Name : ");

name = sc.nextLine();

System.***out***.println("Enter the product Price : ");

price = sc.nextDouble();

Product p = **new** Product(id, name, price);

al = ps.addProduct(p);

}

} **catch** (Exception e) {

System.***out***.println("\"wrong addition\"");

}

**break**;

**case** 2:

**if** (count > 0) {

**try** {

Product p = **new** Product(id, name, price);

System.***out***.println("You are going to perform updation of product");

System.***out***.println("enter the id for the product to update");

id = sc.nextInt();

System.***out***.println("enter the price for the product to update");

price = sc.nextDouble();

al = ps.updateProduct(p, id, price);

System.***out***.println("The product with Id " + id + " is updated");

} **catch** (Exception e) {

System.***out***.println("\"wrong updation\"");

}

}

**else** {

System.***out***.println("There is no product to update,please add first");

}

**break**;

**case** 3:

**if** (count > 0) {

**try** {

System.***out***.println("You are going to perform Deletion of product");

System.***out***.println("Enter the Id of product you want to delete ");

id = sc.nextInt();

ps.deleteProduct(id);

System.***out***.println("The product with Id " + id + " is deleted");

} **catch** (Exception e) {

System.***out***.println("\"wrong deletion\"");

}

} **else** {

System.***out***.println("\" Sorry, No products are available to delete \"");

}

**break**;

**case** 4:

**if** (count > 0) {

**try** {

System.***out***.println("Displaying all products details");

al = ps.displayAllProducts();

Iterator<Product> i1 = al.iterator();

**while** (i1.hasNext()) {

System.***out***.println(i1.next());

}

} **catch** (Exception e) {

System.***out***.println("\"products list is empty\"");

}

} **else** {

System.***out***.println("\" Sorry,There are no products to show,Please add first \"");

}

**break**;

**case** 5:

**if** (count > 0) {

**try** {

System.***out***.println("Enter product Id:");

id = sc.nextInt();

System.***out***.println("Retrieving product price");

price = ps.retrieveProductPrice(id);

System.***out***.println("Product price=" + price);

} **catch** (Exception e) {

System.***out***.println("\"wrong retrieval\"");

}

} **else** {

System.***out***.println("\" Sorry No products are available to retrieve \"");

}

**break**;

**case** 6:

flag = **false**;

System.*exit*(0);

**break**;

**default**:

System.***out***.println("Invalid choice ,please choose correct option");

**break**;

}

} **while** (flag);

} **catch** (Exception e) {

System.***out***.println("\"wrong operation\"");

}

}

}

**package** bean;

**import** java.io.Serializable;

**public** **class** Product **implements** Serializable {

@Override

**public** String toString() {

**return** "Product [pid=" + pid + ", pname=" + pname + ", price=" + price + "]";

}

**private** **int** pid;

**private** String pname;

**private** **double** price;

**public** Product(**int** pid, String pname, **double** price) {

**super**();

**this**.pid = pid;

**this**.pname = pname;

**this**.price = price;

}

**public** **int** getPid() {

**return** pid;

}

**public** **void** setPid(**int** pid) {

**this**.pid = pid;

}

**public** String getPname() {

**return** pname;

}

**public** **void** setPname(String pname) {

**this**.pname = pname;

}

**public** **double** getPrice() {

**return** price;

}

**public** **void** setPrice(**double** price) {

**this**.price = price;

}

}

**package service;**

**import java.util.ArrayList;**

**import java.util.List;**

**import java.util.Scanner;**

**import bean.Product;**

**public class ProductService {**

**List<Product> pr = new ArrayList<>();**

**int id;**

**String name;**

**double price;**

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

**public List<Product> addProduct(Product p) {**

**pr.add(p);**

**return pr;**

**}**

**public List<Product> updateProduct(Product p, int id, double price) {**

**p.setPrice(price);**

**pr.set(id - 1, p);**

**return pr;**

**}**

**public void deleteProduct(int pid) {**

**Product p = pr.get(pid - 1);**

**pr.remove(p);**

**}**

**public List<Product> displayAllProducts() {**

**return pr;**

**}**

**public double retrieveProductPrice(int pid) {**

**Product p = (Product) pr.get(pid - 1);**

**return p.getPrice();**

**}**

**}**