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# Question 1:

## Product Class

package prog\_assignment;

public class Product

{//--------------------------------------------------------------------------Product Class---------------------------------------------------------------------//

//This is a product class which I create variables to manipulates the product

private String productName, productCode, stock, price, supplier, proCat, warranty;

//I use variable to create construction to store values here//

public Product(String productCode, String productName, String price, String stock, String proCat, String warranty, String supplier)

{

this.productCode = productCode;

this.productName = productName;

this.price = price;

this.stock = stock;

this.proCat = proCat;

this.warranty = warranty;

this.supplier = supplier;

}

//Here I Implemented the getters and setters of each variable //

public String getProductName()

{

return productName;

}

public void setProductName(String productName)

{

this.productName = productName;

}

public String getProductCode()

{

return productCode;

}

public void setProductCode(String productCode)

{

this.productCode = productCode;

}

public String getPrice()

{

return price;

}

public void setPrice(String price)

{

this.price = price;

}

public String getStock()

{

return stock;

}

public void setStock(String stock)

{

this.stock = stock;

}

public String getSupplier()

{

return supplier;

}

public void setSupplier(String supplier)

{

this.supplier = supplier;

}

public String getProCat()

{

return proCat;

}

public void setProCat(String proCat)

{

this.proCat = proCat;

}

public String getWarranty()

{

return warranty;

}

public void setWarranty(String warranty)

{

this.warranty = warranty;

}

//Here I created the toString method to print the values based on the assignment shown//

@Override

public String toString()

{

String show = String.format("PRODUCT CODE: \t%15S\n PRODUCT NAME: \t%15S\n PRODUCT WARRANTY : \t%10s\n PRODUCT CATEGORY : \t%10s\n PRODUCT PRICE: \tR%15s\n PRODUCT STOCK LEVELS: \t%5s\n PRODUCT SUPPLIER : \t%15s ", getProductCode(), getProductName(), getWarranty(), getProCat(), getPrice(), getStock(), getSupplier());

return show;

}

}//------------------------------------------------------------------------------------------------End of Product class-----------------------------------------------------------------------------------------------//

## Product menu class

package prog\_assignment;

import javax.swing.JOptionPane;

public class Productmenu

{//---------------------------------------------------------------------productMenu-----------------------------------------------------------------------//

public static void displayMenu()

{

//this is for displaying the menu to welcoming the user//

int chose = JOptionPane.showConfirmDialog(null, """

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Enter Yes to launch menu or Press No to exit""", "Menu", JOptionPane.YES\_NO\_OPTION, JOptionPane.INFORMATION\_MESSAGE);

//I link the method to input the yes or no value///

menuItems(chose);

}

public static void menuItems(int item)

{

//Based on the response of a user does the following//

//if user has chosen yes option then menu to chose options//

if (item == JOptionPane.YES\_OPTION)

{

String[] items =

{

"Capture a new product", "Search for a product", "Update a product", "Delete a product", "Print report", "Exit Application"

};

String s = (String) JOptionPane.showInputDialog(null, "Please select one of the following items", "Items menu", JOptionPane.QUESTION\_MESSAGE, null, items, items[0]);

//based on selection of a menu it will store on to a selection method//

selection(s);

}

else

{

if (item == JOptionPane.NO\_OPTION)

{

//if user has chosen no option then it will show messages and it exits the application

JOptionPane.showMessageDialog(null, "Thank you");

System.exit(0);

}

}

}

public static void selection(String select)

{

//This method for based on the menu selection it will redirects to the method//

//I use switch statment to based on select variable//

switch (select)

{

case "Capture a new product":

Report.CaptureProduct();

case "Search for a product":

Report.searchProduct();

case "Update a product":

Report.updateProduct();

case "Delete a product":

Report.deleteProduct();

case "Print report":

Report.totalReportValue();

case "Exit Application":

JOptionPane.showMessageDialog(null, "Thank you");

System.exit(0);

}

}

public static void returnMethod()

{

//It is where user will redirects to this method after they done with the method//

//every method in report class contains this method to redirects to the menu//

int select = JOptionPane.showConfirmDialog(null, "Enter Yes to launch menu or No to exit", "Message", JOptionPane.YES\_NO\_OPTION, JOptionPane.INFORMATION\_MESSAGE);

if (select == JOptionPane.YES\_OPTION)

{

String[] items =

{

"Capture a new product", "Search for a product", "Update a product", "Delete a product", "Print report", "Exit Application"

};

String s = (String) JOptionPane.showInputDialog(null, "Please select one of the following items", "Items menu", JOptionPane.QUESTION\_MESSAGE, null, items, items[0]);

selection(s);

}

else

{

if (select == JOptionPane.NO\_OPTION)

{

JOptionPane.showMessageDialog(null, "Thank you");

System.exit(0);

}

}

}

}//-------------------------------------------------------------------------End of productMenu()------------------------------------------------------//

## Report Class

package prog\_assignment;

import javax.swing.JOptionPane;

public class Report

{//--------------------------------------------------------------ReportClass-------------------------------------------------------------------------------//

//this is a report class where we use to manipulate the products//

public static void CaptureProduct()

{//==============================CaptureProduct()=====================================================//

//Here we ask user to input the number of items that you want to store//

//the number is stored on to a array to create a size//

int ad = Integer.parseInt(JOptionPane.showInputDialog(null, "Please provide the number of items that you add"));

PROG\_Assignment.proList = new Product[ad];

String[] warranty =

{

"6 Months", "2 Years"

};

String[] category =

{

"Desktop Computer", "Laptop ", "Tablet", "Printer", "Gaming Console"

};

String proCode, proname, pric, stock, cat, warty, supl;

//we use for loop to store values in an array//

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

//I use variable to input the user values//

proCode = JOptionPane.showInputDialog("Please Provide the Product code");

proname = JOptionPane.showInputDialog("Please provide the Name of the product");

pric = JOptionPane.showInputDialog("Please Provide the price of a product" + ": " + proname);

stock = JOptionPane.showInputDialog("Please provide the stock levels of a product" + ": " + proname);

cat = (String) JOptionPane.showInputDialog(null, "Please select the category of this product", "Select the Product category" + ": " + proname, JOptionPane.QUESTION\_MESSAGE, null, category, category[0]);

warty = (String) JOptionPane.showInputDialog(null, "Please select one of the following items", "Select the Product Warranty" + ": " + proname, JOptionPane.QUESTION\_MESSAGE, null, warranty, warranty[0]);

supl = JOptionPane.showInputDialog("Please provide the supplier of the product" + ": " + proname);

//That variable is used to store on to a product constructor of an array//

PROG\_Assignment.proList[v] = new Product(proCode, proname, pric, stock, cat, warty, supl);

JOptionPane.showMessageDialog(null, "Products has been successfully saved");

}

//this is for printing the method That was stored//

Productmenu.returnMethod();

//=========================================End of captureProduct()============================================//

}

public static void searchProduct()

{//================================================SearchProduct()=================================================//

//In this method we use to search the product whether the product code it contains it or not//

//Here we asking user to input the product code//

String code = JOptionPane.showInputDialog(null, "Please enter the product code to search", "Search product", JOptionPane.INFORMATION\_MESSAGE);

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

//Iam using to array from main class to get product which must be equal to code variable input//

if (PROG\_Assignment.proList[v].getProductCode().equals(code))

{

//If the condition is true then print the function based on the product code//

JOptionPane.showMessageDialog(null, PROG\_Assignment.proList[v].toString());

Productmenu.returnMethod();

}

else

{

if (!PROG\_Assignment.proList[v].getProductCode().contains(code))

{

//If the product code did not match the code variable then it will show this message//

JOptionPane.showMessageDialog(null, "Invalid code", "Error code", JOptionPane.ERROR\_MESSAGE);

Productmenu.returnMethod();

}

}

}

//============================================End of SearchProduct()==============================================//

}

public static void deleteProduct()

{//================================================deleteProduct()==========================================//

//Iam asking user provide the product code to delete the product

String code = JOptionPane.showInputDialog(null, "Please enter the product code to delete", "Delete product", JOptionPane.INFORMATION\_MESSAGE);

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

//if the condition has met then delete the product //

if (PROG\_Assignment.proList[v].getProductCode().equals(code))

{

PROG\_Assignment.proList[v] = null;

JOptionPane.showMessageDialog(null, "Successfully deleted the Product" + " " + PROG\_Assignment.proList[v].getProductCode(), "Deleted the Product", JOptionPane.INFORMATION\_MESSAGE);

Productmenu.returnMethod();

}

else

{

//If the condition has not met the conditon then it will show the error message//

if (!PROG\_Assignment.proList[v].getProductCode().equals(code))

{

JOptionPane.showMessageDialog(null, "Invalid Code", "Error Code", JOptionPane.ERROR\_MESSAGE);

Productmenu.returnMethod();

}

}

}

//===============================================End of deleteProduct()============================================//

}

public static void updateProduct()

{//==================================updateProduct()========================================//

//In this method we ask user if they want to update a product which we use the product code that they provide//

String code = JOptionPane.showInputDialog(null, "Please enter the product code to update", "Update product", JOptionPane.INFORMATION\_MESSAGE);

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

//if condition has met then it will do the process//

if (PROG\_Assignment.proList[v].getProductCode().equals(code))

{

//here I created a methods for updating warranty,price,stock at the same time//

//each method contains it's own process//

updateWarrantyProduct();

updatePriceProduct();

updateStockLevels();

}

else

{

if (!PROG\_Assignment.proList[v].getProductCode().equals(code))

{

//if the condtion has not met then it will show the error message//

JOptionPane.showMessageDialog(null, "Invalid code", "Error code", JOptionPane.ERROR\_MESSAGE);

Productmenu.returnMethod();

}

}

}

}

public static void updateWarrantyProduct()

{

//This method for updating warranty of a product so we ask if they insterested to update the product or not//

int chose = JOptionPane.showConfirmDialog(null, "If you want to update a product say yes or no", "Update Product", JOptionPane.YES\_NO\_OPTION, JOptionPane.INFORMATION\_MESSAGE);

if (chose == JOptionPane.YES\_OPTION)

{

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

//If they chosen yes, then we ask user to input to chose the warranty of a product//

String[] warranty =

{

"6 Months", "2 Years"

};

String warty = (String) JOptionPane.showInputDialog(null, "Please select one of the following items", "Select the Product Warranty" + ":" + PROG\_Assignment.proList[v].getProductCode(), JOptionPane.QUESTION\_MESSAGE, null, warranty, warranty[0]);

//After the following option they chose it will going to update the warranty//

PROG\_Assignment.proList[v].setWarranty(warty);

}

}

else

{

//If user is chosen yes then it will redirect to the updatePriceProduct//

if (chose == JOptionPane.NO\_OPTION)

{

updatePriceProduct();

}

}

}

public static void updatePriceProduct()

{

//same process like updating warranty product but only difference here is we updating the price of a product//

int chose = JOptionPane.showConfirmDialog(null, "If you want to update a Price of a product say yes or no", "Price Product", JOptionPane.YES\_NO\_OPTION, JOptionPane.INFORMATION\_MESSAGE);

if (chose == JOptionPane.YES\_OPTION)

{

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

String pric = JOptionPane.showInputDialog("Please Provide the price of a product" + ":" + PROG\_Assignment.proList[v].getProductCode());

PROG\_Assignment.proList[v].setPrice(pric);

}

}

else

{

//if user chosen no option it will redirect to the stock levels//

if (chose == JOptionPane.NO\_OPTION)

{

updateStockLevels();

}

}

}

public static void updateStockLevels()

{

int chose = JOptionPane.showConfirmDialog(null, "If you want to update a stock levels say yes or no", "Product Stock", JOptionPane.YES\_NO\_OPTION, JOptionPane.INFORMATION\_MESSAGE);

if (chose == JOptionPane.YES\_OPTION)

{

//we ask user to provide the stock that you want to update//

//it will change in the array//

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

String stock = JOptionPane.showInputDialog("Please provide the stock levels of a product" + ":" + PROG\_Assignment.proList[v].getProductCode());

PROG\_Assignment.proList[v].setStock(stock);

}

}

else //if user chosen has no option then it will redirected to the menu//

if (chose == JOptionPane.NO\_OPTION)

{

JOptionPane.showMessageDialog(null, "Product details has been updated successfully", "Successfully Updated", JOptionPane.INFORMATION\_MESSAGE);

Productmenu.returnMethod();

}

}

public static void totalReportValue()

{//============================================totalReportValue()================================//

//it is where we displaying the report//

int total = 0;

for (int v = 0; v < PROG\_Assignment.proList.length; v++)

{

JOptionPane.showMessageDialog(null, PROG\_Assignment.proList[v].toString());

total += Integer.parseInt(PROG\_Assignment.proList[v].getPrice());

}

//we use for loop to display the number of products that has been captured//

JOptionPane.showMessageDialog(null, "Total Product Count :" + " " + PROG\_Assignment.proList.length);

//we use variable called "total'' to store the prices of a each product which will add up//

JOptionPane.showMessageDialog(null, "Total product value :" + " " + total);

//this is for average product value by diving the total value to a length of an array//

JOptionPane.showMessageDialog(null, "Average product value : R" + total / PROG\_Assignment.proList.length);

newProduct();

//=======================================End of totalReportValue()===========================================//

}

public static void newProduct()

{//==========================================newProduct()===============================================//

//we ask user to if they capture new products say yes or no//

int chose = JOptionPane.showConfirmDialog(null, "If you want to capture new products say yes or no", "Adding new Products", JOptionPane.YES\_NO\_OPTION, JOptionPane.INFORMATION\_MESSAGE);

//if yes then it will redirect to a capture product class//

if (chose == JOptionPane.YES\_OPTION)

{

CaptureProduct();

}

else

{

if (chose == JOptionPane.NO\_OPTION)

{

JOptionPane.showMessageDialog(null, "Thank you");

System.exit(0);

}

}

//==================================End of newProduct()=====================================================//

}

}//---------------------------------------------------------End of Report Class----------------------------------------------------------------------------//

## PROG\_Assignment Question1:

package prog\_assignment\_Question1;

import javax.swing.JOptionPane;

public class PROG\_Assignment

{

//I make static of a product class had proList to store objects here//

static Product[] proList = new Product[10];

public static void main(String[] args)

{

//I create instance method here to display the hardcode values//

//This is to display the values that was stored , if you insterested you can run it by just removing the comments//

displayValues();

//This is main assignment class that i created//

Productmenu.displayMenu();

}

public static void displayValues()

{

//this is a hardcode for product class to display the values that was inputed on a constructor by using instance//

Product pro1 = new Product("A55", "Elitebook", "12000", "3", "Laptop", "2 years", "IT\_4\_Africa");

Product pro2 = new Product("A54", "ExtremeBook", "12500", "3", "Tablet", "6 months", "IT\_3\_Africa");

Product pro3 = new Product("A56", "Ps5", "8500", "3", "Gaming Console", "2 years", "Game\_4\_Africa");

Product pro4 = new Product("A57", "Asus", "1200", "1", "Laptop", "2 years", "Incredible\_connections");

Product pro5 = new Product("A58", "Hp", "1800", "2", "Laptop", "2 years", "Game");

Product pro6 = new Product("A59", "Elitebook", "12000", "3", "Laptop", "2 years", "IT\_4\_Africa");

Product pro7 = new Product("A60", "ExtremeBook", "12500", "3", "Tablet", "6 months", "IT\_3\_Africa");

Product pro8 = new Product("A61", "Ps5", "8500", "3", "Gaming Console", "2 years", "Game\_4\_Africa");

Product pro9 = new Product("A62", "Asus", "1200", "1", "Laptop", "2 years", "Incredible\_connections");

Product pro10 = new Product("A63", "Hp", "1800", "2", "Laptop", "2 years", "Game");

//I created a proList array as a "static" to store values of instance of a product class to display the values//

//every instance contains its own constructor which was used to print the "tostring" from a product class//

proList[0] = pro1;

proList[1] = pro2;

proList[2] = pro3;

proList[3] = pro4;

proList[4] = pro5;

proList[5] = pro6;

proList[6] = pro7;

proList[7] = pro8;

proList[8] = pro9;

proList[9] = pro10;

//I use for loop to print this function in Joptionpane using toString//

for (int v = 0; v < proList.length; v++)

{

JOptionPane.showMessageDialog(null, proList[v].toString());

}

}

}

# Question 2

## CarsShowroomMenu

package Prog\_assignment\_Question2;

import javax.swing.JOptionPane;

public class CarsShowroomMenu

{//============================================menu2===============================//

//In this menu iam displaying the cars which user has to select based on the options that has provided//

public static void display()

{

String[] dis =

{

"View all Cars", "View Car by Each", "Exit"

};

String show = (String) JOptionPane.showInputDialog(null, "Welcome to the VickyCars Traders", "Select the option below to view our stock", JOptionPane.QUESTION\_MESSAGE, null, dis, dis[0]);

choose(show);

//==============================End of menu ============================================//

}

public static void choose(String show)

{ //=============================choose()==================================================//

//I created a 2d array to store cars are avaliable to in my showroom//

String[][] carsShowRoom =

{

//In this 2d aray it includes the toyata,bmw,volkswagen,ford//

{

"Toyota", "Hilux", " 6 Xtra Cab 4x4", "2019", "White", "R539,900"

},

{

"BMW", "3 series", "320D ", "2021", "Alpine White", "R789,900"

},

{

"VolksWagen", "Golf ", " Convertible", " 2020", "Black", "R850,450"

},

{

"Ford", "Everest", "Convertible", " 2019", "white", " R125,000"

}

};

//I made if and else based on the options the user chooose//

if (show.equals("View all Cars"))

{

//if user choose view all cars then it will show all the cars are available//

BrandedCars.manyCars(carsShowRoom);

}

else

{

//if user choose view cars by each brand then it will show cars seperately//

if (show.equals("View Car by Each"))

{

String[] diffCars =

{

"View Toyota cars", "View Ford cars", "View Volkswagen cars", "View BMW Cars"

};

String car = (String) JOptionPane.showInputDialog(null, "Please Select the option to view detailed cars", "View Cars", JOptionPane.QUESTION\_MESSAGE, null, diffCars, diffCars[0]);

switch (car)

{

//Here is the methods that I created based on cars brand//

case "View Toyota cars":

BrandedCars.toyataCars(carsShowRoom);

case "View Ford cars":

BrandedCars.fordCars(carsShowRoom);

case "View Volkswagen cars":

BrandedCars.volksCars(carsShowRoom);

case "View BMW Cars":

BrandedCars.BMWCars(carsShowRoom);

}

}

else

{

if (show.equals("Exit"))

{

JOptionPane.showMessageDialog(null, "Thank you");

System.exit(0);

}

}

}

//=====================================End of Choose()=======================================//

}

}//----------------------------------------------------------------------------End of CarsShowroomMenu---------------------------------------------------------------------------//

## Vehicle class

package Prog\_assignment\_Question2;

public class Vehicle

{

//This is a parent class for a Car class//

//These are the private fields in vehicles//

private String make;

private String color;

private String year;

private String model;

// Parameterized Constructor

public Vehicle(String make, String color, String year, String model)

{

this.make = make;

this.color = color;

this.year = year;

this.model = model;

}

// This method to print the model,color,year and manufacturer//

@Override

public String toString()

{

String show = String.format("Manufacturer : %s\nModel : %s\nColor : %s\nYear %s", make,model,color,year);

return show;

}

}

## Cars class

package Prog\_assignment\_Question2;

public class Cars extends Vehicle

{//------------------------------------------------------------------Cars that Extends Vehicle-------------------------------------------------------//

//I inhert the vehicle class which mean this class is a child's class//

//Private String variables of this class

private final String bodyStyle;

private final String price;

//this is a construction//

public Cars(String make, String color, String year, String model, String bodyStyle, String price)

{

super(make, color, year, model); //iam calling parent class constructor

this.bodyStyle = bodyStyle;

this.price = price;

}

@Override

public String toString()

{

//displaying the detials of cars

//iam calling method from parent class

String show = String.format("%s\nBody Style : %s\nPrice : %s", super.toString(), bodyStyle, price);

return show;

}

}//------------------------------------------------------------------End of Cars that Extends Vehicle-------------------------------------------------------//

## BrandedCars

package Prog\_assignment\_Question2;

import javax.swing.JOptionPane;

public class BrandedCars

{//------------------------------------------------------------BrandedCars()-------------------------------------------------------------------------//

public static void manyCars(String[][] carSales)

{//========================ManyCars()=============================================//

//i created the carslaes 2d arrray in paranthesis to link the 2d array in menu and to use it on to a for loop//

//Iam using for loop to to display the values based on the position on 2d array//

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

{

Cars show = new Cars(carSales[i][0], carSales[i][4],

carSales[i][3], carSales[i][1], carSales[i][2], carSales[i][5]);

JOptionPane.showMessageDialog(null, show.toString(), "The Cars", JOptionPane.INFORMATION\_MESSAGE);

}

} //===============================End of many Cars()==================================//

public static void toyataCars(String[][] carSales)

{//========================ToyataCars()=============================================//

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

{

//This process almost same like manycars method but only thing is difference is I created if function//

//In if function Iam searching the name of "Toyata" so based on search am displaying the value//

if (carSales[i][0].equals("Toyota"))

{

Cars show = new Cars(carSales[i][0], carSales[i][4],

carSales[i][3], carSales[i][1], carSales[i][2], carSales[i][5]);

JOptionPane.showMessageDialog(null, show.toString());

}

else

{

if (!carSales[i][0].equals("Toyota"))

{

System.exit(0);

}

}

}

//========================End of ToyataCars()=============================================//

}

public static void BMWCars(String[][] carSales)

{//========================BMW Cars()=============================================//

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

{

if (carSales[i][0].equals("BMW"))

{

Cars show= new Cars(carSales[i][0], carSales[i][4],

carSales[i][3], carSales[i][1], carSales[i][2], carSales[i][5]);

JOptionPane.showMessageDialog(null, show.toString());

}

else

{

if (!carSales[i][0].equals("Toyota"))

{

System.exit(0);

}

}

}

//========================End of BMW Cars()=============================================//

}

public static void volksCars(String[][] carSales)

{//========================volks Cars()=============================================//

for (int i = 2; i < carSales.length; i++)

{

if (carSales[i][0].equals("VolksWagen"))

{

Cars show = new Cars(carSales[i][0], carSales[i][4],

carSales[i][3], carSales[i][1], carSales[i][2], carSales[i][5]);

JOptionPane.showMessageDialog(null, show.toString());

}

else

{

if (!carSales[i][0].equals("VolksWagen"))

{

System.exit(0);

}

}

}

//========================End of VolksCars()=============================================//

}

public static void fordCars(String[][] carSales)

{//========================fordCars()=============================================//

for (int i = 3; i < carSales.length; i++)

{

if (carSales[i][0].equals("Ford"))

{

Cars show = new Cars(carSales[i][0], carSales[i][4],

carSales[i][3], carSales[i][1], carSales[i][2], carSales[i][5]);

JOptionPane.showMessageDialog(null, show.toString());

}

}

//========================End of fordCars()=============================================//

}

//--------------------------------------------------------------------End of Branded Cars()-------------------------------------------------------------//

}

## Prog\_Assignment\_2

package Prog\_assignment\_Question2;

public class Prog\_Assignment\_2

{

public static void main(String[] args)

{

//this task based on the showrooms of cars that I created//

CarsShowroomMenu.display();

}

}