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Year 3 Semester 1

Software Design with Artificial Intelligence for Cloud Computing

Software Dev Project

Project 2

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# Part 1 Code

## Phone.java

**package** project2;

**import** java.io.Serializable;

@SuppressWarnings("serial")

**public** **class** Phone **implements** Serializable {

// Declare variables

**private** String make, model, smart;

**private** **double** camera, screen, price;

**private** **int** memory;

// Constructor

**public** Phone(String make, String model, **int** memory, **double** camera, **double** screen, String smart, **double** price) {

**this**.make = make;

**this**.model = model;

**this**.memory = memory;

**this**.camera = camera;

**this**.screen = screen;

**this**.smart = smart;

**this**.price = price;

}

**public** String getMake() {

**return** make;

}

**public** **void** setMake(String make) {

**this**.make = make;

}

**public** String getModel() {

**return** model;

}

**public** **void** setModel(String model) {

**this**.model = model;

}

**public** **double** getCamera() {

**return** camera;

}

**public** **void** setCamera(**double** camera) {

**this**.camera = camera;

}

**public** **double** getScreen() {

**return** screen;

}

**public** **void** setScreen(**double** screen) {

**this**.screen = screen;

}

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

**return** price;

}

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

**this**.price = price;

}

**public** String isSmart() {

**return** smart;

}

**public** **void** setSmart(String smart) {

**this**.smart = smart;

}

**public** **int** getMemory() {

**return** memory;

}

**public** **void** setMemory(**int** memory) {

**this**.memory = memory;

}

**public** String printDetails() {

**return** "Make: " + **this**.make +

"\tModel: " + **this**.model +

"\tMemory: " + **this**.memory +

"\tCamera: " + **this**.camera +

"\tScreen: " + **this**.screen +

"\tSmart: " + **this**.smart +

"\tPrice: " + **this**.price;

}

}

## TestPhone.java

**package** project2;

**import** java.io.FileInputStream;

**import** java.io.FileOutputStream;

**import** java.io.ObjectInputStream;

**import** java.io.ObjectOutputStream;

**import** java.util.ArrayList;

**import** java.util.List;

**public class** TestPhone {

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

// Create array to store phones in

List<Phone> phones = **new** ArrayList<>();

// Add phones from the table

phones.add(**new** Phone("Sony", "Experia X", 32, 12.5, 3.6, "Yes", 150));

phones.add(**new** Phone("Sony", "Experia Z", 64, 14.2, 5.6, "Yes", 175));

phones.add(**new** Phone("Samsung", "Galaxy M", 64, 14.5, 5.4, "Yes", 180));

phones.add(**new** Phone("Nokia", "3330", 16, 13.2, 2.3, "No", 90));

phones.add(**new** Phone("Motorola", "M1", 8, 11.3, 4.9, "Yes",100));

phones.add(**new** Phone("iPhone", "6", 32, 13.5, 6.4, "Yes",250));

phones.add(**new** Phone("Alcatel", "A3", 8, 9.3, 2.4, "No", 50));

**try** {

*serialisePhones*(phones);

System.**out**.println("Phones successfully serialised.\n");

} **catch** (Exception e) {

System.**out**.println("Couldn't serialize.\nError: ");

e.printStackTrace();

}

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

// Deserializing

System.**out**.println("Deserialised:\n");

// Create list for deserialization

List<Phone> deserializedPhones = deserialisePhones();

**for** (Phone phone: deserializedPhones) {

System.**out**.println(phone.printDetails());

}

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

// Print message phone successfully deleted

System.**out**.println("\nDeleting Alcatel... \n" + phones.remove(6).getMake() + " successfully deleted.");

// Check if phone was deleted

**try** {

System.**out**.println(phones.get(6).getMake());

} **catch** (Exception e) {

System.**out**.println("\nChecking if phone still in table... \nPhone doens't exist in the table.");

}

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

// Add new phone to the list

phones.add(**new** Phone("Huawei", "P30 Pro", 128, 14.5, 5.4, "Yes", 250));

System.**out**.println("\nNew phone has been added: \n" + phones.get(6).printDetails());

}

// Serialise Method

**public static void** serialisePhones(List<Phone> phones) {

**try** {

// Serialise to the file

FileOutputStream fileOut = **new** FileOutputStream("phone.ser");

// Assign what object to serialise

@SuppressWarnings("resource")

ObjectOutputStream objOut = **new** ObjectOutputStream(fileOut);

// Loop through phones array

**for** (Phone p : phones) {

objOut.writeObject(p);

}

objOut.close();

fileOut.close();

} **catch** (Exception e) {

System.**out**.println("Exception cought.\n");

e.printStackTrace();

}

}

// Deserialise method

**public static** List<Phone> *deserialisePhones()* {

List<Phone> phones = **new** ArrayList<>();

**try** {

FileInputStream fileIn = **new** FileInputStream("phone.ser");

ObjectInputStream objIn = **new** ObjectInputStream(fileIn);

// Loop until end of file is reached

**while** (**true**) {

**try** {

Phone p = (Phone) objIn.readObject();

phones.add(p);

} **catch** (Exception e) {

//System.out.println("\n# End of File Reached#\n");

**break**;

}

}

objIn.close();

fileIn.close();

} **catch** (Exception e) {

System.**out**.println("Couldn't deserialize the file!");

e.printStackTrace();

}

**return** phones;

}

}

## Console Output

A screenshot of a computer

Description automatically generated

# Part 2 Code

## Console Output