Tender Heart High School,33 B, Chandigarh

Class VIII Computer Date-01.10.2024

Topic: Introduction to JAVA and BlueJ **Teacher:** Prabhdeep

Good Morning Students, this lesson is of class VIII, for the subject of computers. Today we cover the Sub-topic CLASS which is covered in Chapter 5 of your text book titled 'Logix 8'

Before Starting our topic, let us recall our last assignment topic that was on objects. As we know that objects are real world entities or items. Eg. a pen, a pencil, a cat, a dog etc. In object Oriented programming a class is a blueprint for creating objects. A class represents a group of objects of the same kind, which means objects are Considered as members of a Class. Now I will give you one simple example of an object pen to explain the Concept of Class and Object. If we are having a class named 'Pen' then our objects in Class 'Pen' will be

1. Ballpoint Pen
2. Fountain Pen
3. Gel Pen
4. Rollerball Pen

Similarly an apple, banana, Orange are Considered as the objects of the Class Fruit.

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A class consists of two aspects variables and functions. you must be thinking what are variables and functions. So, variables are those that form the state of an object, now here state determines the properties, appearance and other qualities of the object and functions of a class use these variables to perform various operations. Thus, the functions form the behaviour of an object. Class and object are basic building blocks in object-oriented programming languages. A class is written by a programmer in a defined structure to create an object.

Features of Object Oriented Programming :-

1. Abstraction: Abstraction or Data Abstraction is the process of hiding certain details and showing only essential information to the user.

Abstraction is a very important feature of object oriented programming. It is used to manage the complexity of the system. For example, Sending SMS where you type the text and send the message. you don't know the internal processing about the

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message delivery. Similarly while using an ATM machine, we insert our debit or Credit Card in the provided slot and follow the instructions that appear on the screen. We never Comes to know about the processes that run in the background.

2. Encapsulation :- Encapsulation simply means binding object state and behaviour together. Encapsulation ensures that a user Cannot access the data without proper authorisation. Let us again take an example of ATM machine. we can only access to our account if we have Pin code of our account. The Data like account number Pin can be accessed by using the functions like Checking Account Balance, withdraw Cash etc. Another example of encapsulation is a Capsule which is mixed of several medicine so, the process of binding data and corresponding methods together into a single unit is called encapsulation in Java.

3. Inheritance :- Inheritance can be defined as the process where one Class acquires the properties of another

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Class. The class which inherits the properties of other is known as subclass and the class whose properties are inherited is known as superclass. Inheritance brings the concept of object-Oriented programming a step closer to our lives, as it reflects the real life concept of heredity in programming Heredity is defined as the transfer of characteristics from parents to their children.

4. Polymorphism :- Students, the dictionary meaning of Polymorphism is 'The condition of occuring in several different forms'. Polymorphism means "many forms", and it occurs when we have many classes that are related to each other by inheritance. For example your mobile phone too has polymorphic ability that is one name but many functions, like one mobile can be used as camera, alarm, FM radio, music player etc. So in OOP polymorphism is a feature that behave differently for different objets.

Students, I am ending my lesson here. Read the assignment carefully.