Day1\_Class,method,object

DAY1:

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1.Java Introduction

2.Class,Method,Object

3.Same package and Different package

4.Encapsulation

QUESTIONS(Theory):

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1. What is platform independent? 🡪 **the java compiled code(byte code) can run on all operating systems.**
2. What is open source? **free features for non-commercial developers such as students and educators providers. Licence free software.**
3. Difference between JDK,JRE,JVM?

JDK- Java Development Kit

JRE – Java Runtime Environment

JVM- Java Virtual Machine.

**JDK – Java Development Kit** helps to develop/compile a java program. Inside JDK we have JRE and JVM.

**JRE – Java Runtime Environment –** handles run the program which contains files and library.

**JVM- Java Virtual Machine** – do memory allocations in RAM for the created objects.

* **IDE – Integrated Development Environment** – support code completion, syntax, highlighting, etc.
* **IDE software** – Eclipse, Netbeans, Jdeveloper – oracle, RAD –IBM, Notepad.

4.why we go for java?

5.What is the latest version of JDK and which version you are using in your project?

6.What is the latest version of eclispe and which version you are using in your project?

7.Difference between c++ and java?

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| **Comparison Index** | **C++** | **Java** |
| **Platform-independent** | C++ is platform-dependent. | Java is platform-independent. |
| **Mainly used for** | C++ is mainly used for system programming. | Java is mainly used for application programming. It is widely used in Windows-based, web-based, enterprise, and mobile applications. |
| **Design Goal** | C++ was designed for systems and applications programming. It was an extension of the [C programming language](https://www.javatpoint.com/c-programming-language-tutorial). | Java was designed and created as an interpreter for printing systems but later extended as a support network computing. It was designed to be easy to use and accessible to a broader audience. |
| **Goto** | C++ supports the [goto](https://www.javatpoint.com/cpp-goto-statement) statement. | Java doesn't support the goto statement. |
| **Multiple inheritance** | C++ supports multiple inheritance. | Java doesn't support multiple inheritance through class. It can be achieved by using [interfaces in java](https://www.javatpoint.com/interface-in-java). |
| **Operator Overloading** | C++ supports [operator overloading](https://www.javatpoint.com/cpp-overloading). | Java doesn't support operator overloading. |
| **Pointers** | C++ supports [pointers](https://www.javatpoint.com/cpp-pointers). You can write a pointer program in C++. | Java supports pointer internally. However, you can't write the pointer program in java. It means java has restricted pointer support in java. |
| **Compiler and Interpreter** | C++ uses compiler only. C++ is compiled and run using the compiler which converts source code into machine code so, C++ is platform dependent. | Java uses both compiler and interpreter. Java source code is converted into bytecode at compilation time. The interpreter executes this bytecode at runtime and produces output. Java is interpreted that is why it is platform-independent. |
| **Call by Value and Call by reference** | C++ supports both call by value and call by reference. | Java supports call by value only. There is no call by reference in java. |
| **Structure and Union** | C++ supports structures and unions. | Java doesn't support structures and unions. |
| **Thread Support** | C++ doesn't have built-in support for threads. It relies on third-party libraries for thread support. | Java has built-in [thread](https://www.javatpoint.com/multithreading-in-java) support. |
| **Documentation comment** | C++ doesn't support documentation comments. | Java supports documentation comment (/\*\* ... \*/) to create documentation for java source code. |
| **Virtual Keyword** | C++ supports virtual keyword so that we can decide whether or not to override a function. | Java has no virtual keyword. We can override all non-static methods by default. In other words, non-static methods are virtual by default. |
| **unsigned right shift >>>** | C++ doesn't support >>> operator. | Java supports unsigned right shift >>> operator that fills zero at the top for the negative numbers. For positive numbers, it works same like >> operator. |
| **Inheritance Tree** | C++ always creates a new inheritance tree. | Java always uses a single inheritance tree because all classes are the child of the Object class in Java. The Object class is the root of the [inheritance](https://www.javatpoint.com/inheritance-in-java) tree in java. |
| **Hardware** | C++ is nearer to hardware. | Java is not so interactive with hardware. |
| **Object-oriented** | C++ is an object-oriented language. However, in the C language, a single root hierarchy is not possible. | Java is also an [object-oriented](https://www.javatpoint.com/java-oops-concepts) language. However, everything (except fundamental types) is an object in Java. It is a single root hierarchy as everything gets derived from java.lang.Object. |

8.Features of java?

* Open Source software (free license)
* Platform independent(OS, windows, linux, solaris,mac)
* Multiple Threading – run multiple programme at the same time.
* Secure – creates a virtual firewall between the computer and programme. So it doesn’t grant unauthorized access.

9.What type of tool you are using in your project to execute java? Eclipse IDE

10.Difference between class,method,object?

**Object –** process of creating run time memory allocation

**Method –** set of actions to be performed

**Class –** collection of objects and methods

**Package –** collections of classes

**Project –** collections of packages.

11. Where object stores?

In Java, all objects are dynamically allocated on Heap.  In JAVA , when we allocate the object using new(), the object is allocated on Heap, otherwise on Stack if not global or static. In Java, when we only declare a variable of a class type, only a reference is created (memory is not allocated for the object). To allocate memory to an object, we must use new(). So the object is always allocated memory on the heap.

12.How to access one class method in to another package in different package?

**import packagename.classname;**

13.What is encapsulation?

Is a mechanism of wrapping up of data(variables) and code acting on the data(methods) together in a single unit.

14.Coding standard to create project,class,method,package and object ?

**Project name and Class name -🡪 Pascal notation**

Eg, ProjectName, ClassName

**Object name and Variable name 🡺 Camel notation**

Eg, myStud, myEmp

15.What gives Java it's "write once and run anywhere" nature?

[JVM(Java Virtual Machine)](https://www.geeksforgeeks.org/jvm-works-jvm-architecture/) acts as a run-time engine to run Java applications. JVM is the one that actually calls the main method present in Java code. JVM is a part of the [JRE(Java Runtime Environment)](https://www.geeksforgeeks.org/differences-jdk-jre-jvm/).

Java applications are called **WORA (Write Once Run Anywhere)**. This means a programmer can develop Java code on one system and can expect it to run on any other Java-enabled system without any adjustment. This is all possible because of JVM.

QUESTIONS(Programs):

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QUESTION 1:

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Project :EmployeeDetails

Package :org.emp

Class :Employee

Methods :empId(),empName(),empDob(),empPhone(),empEmail(),empAddress()

Description:

Create an object for employee class and call above methods also follow the all coding standards.

QUESTION 2:

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Project :GreensAddress

Package :org.add

Class :GreensTech

Methods :greensOmr(),greensAdayar(),greensTambaram(),greensVelacherry(),greensAnnaNagar()

Description:

Create an object for GreensTech class and call above methods also follow the all coding standards.

QUESTION 3:

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Project :CompanyDetails

Package :org.company

Class :CompanyInfo

Methods :companyName(),companyId(),companyAddress()

Description:

Create an object for CompanyDetails class and call above methods also follow the all coding standards.

QUESTION 4:

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Project :MyPhone

Package :org.phone

Class :PhoneInfo

Methods :phoneName(),phoneMieiNum(),Camera(),storage(),osName()

Description:

Create an object for PhoneInfo class and call above methods also follow the all coding standards.

QUESTION 5:

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Project :LanguageDetails

Package :org.lang

Class :LanguageInfo

Methods :tamilLanguage(),englishLanguage(),hindiLanguage()

Class :StateDetails

Methods :southIndia(),northIndia()

Description:

Create an object for LanguageInfo and StateDetails inside the StateDetails class and call both classes methods also follow the all coding standards.

QUESTION 6:

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Project :EmployeeInformation

Package :org.emp

Class :Employee

Methods :empName()

Package :org.company

Class :Company

Methods :companyName()

Package :org.client

Class :Client

Methods :clientName()

Package :org.project

Class :Project

Methods :projectName()

Description:

Create an object for all 4 classes inside the Employee class and call all classes methods also follow the all coding standards.

QUESTION 7:

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Project :PhoneDetails

Package :org.phone

Class :ExternalStorage

Methods :size()

Class :InternalStorage

Methods :processorName(),ramSize()

Description:

Create an object for ExternalStorage and InternalStorage inside the InternalStorage class and call both classes methods also follow the all coding standards.

QUESTION 8:

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Project :CollegeInformation

Package :org.college

Class :College

Methods :collegeName(),collegeCode(),collegeRank()

Class :Student

Methods :studentName(),studentDept(),studentId()

Class :Hostel

Methods :hostelName()

Class :Dept

Methods :deptName()

Description:

Create an object for all 4 classes inside the College class and call all classes methods also follow the all coding standards.

QUESTION 9:

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Project :VehicleInformation

Package :org.allvehicle

Class :Vehicle

Methods :VehicleNecessery()

Package :org.twowheeler

Class :TwoWheller

Methods :bike(),cycle()

Package :org.threewheeler

Class :ThreeWheeler

Methods :Auto()

Package :org.fourwheeler

Class :FourWheeler

Methods :car(),bus(),lorry()

Description:

Create an object for all 4 classes inside the Vehicle class and call all classes methods also follow the all coding standards.

QUESTION 10:

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Project :TransportInformation

Package :org.transport

Class :Transport

Methods :TransportForm

Package :org.road

Class :Road

Methods :bike(),cycle(),bus(),car()

Package :org.air

Class :Air

Methods :aeroPlane(),heliCopter()

Package :org.water

Class :Water

Methods :boat(),ship()

Description:

Create an object for all 4 classes inside the Transport class and call all classes methods also follow the all coding standards.

QUESTION 11:

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Project :NetworkInformation

Package :org.network

Class :Wifi

Methods :wifiName()

Class :MobileData

Methods :dataName()

Class :Lan

Methods :lanName()

Class :Wireless

Methods :modamName()

Description:

Create an object for all 4 classes inside the Wifi class and call all classes methods also follow the all coding standards.