----------day2.14

34.What is the purpose of static method in Java?

Static methods have access to class variables (static variables) without using the class's object (instance).

Only static data may be accessed by a static method. It is unable to access data that is not static (instance variables).

35. Why do we mark main method as static in Java?

Java main() method is always static, **so that compiler can call it without the creation of an object or before the creation of an object of the class**. In any Java program, the main() method is the starting point from where compiler starts program execution.

36. In what scenario do we use a static block?

Static block is used for **initializing the static variables**. This block gets executed when the class is loaded in the memory. A class can have multiple Static blocks, which will execute in the same sequence in which they have been written into the program.

37. Is it possible to execute a program without defining a main() method?

Yes, we can execute a java program without a main method by using a static block. Static block in Java is a group of statements that gets executed only once when the class is loaded into the memory by Java ClassLoader, It is also known as a static initialization block.

38. What happens when static modifier is not mentioned in the signature of main method?

If we don't add the 'static' modifier in our main method definition, **the compilation of the program will go through without any issues but when you'll try to execute it, a "NoSuchMethodError" error will be thrown**.

39. What is the difference between static method and instance method in Java?

Instance variables	Static (class) variables
Instance variables are declared in a class, but outside a method, constructor or any block.	Class variables also known as static variables are declared with the static keyword in a class, but outside a method, constructor or a block.
Instance variables are created when an object is created with the use of the keyword 'new' and destroyed when the object is destroyed.	Static variables are created when the program starts and destroyed when the program stops.
Instance variables can be accessed directly by calling the variable name inside the class. However, within static methods (when instance variables are given accessibility), they should be called using the fully qualified name. *ObjectReference.VariableName*.	Static variables can be accessed by calling with the class name *ClassName.VariableName*.

Instance variables hold values that must be referenced by more than one method, constructor or block, or essential parts of an object's state that must be present throughout the class.	There would only be one copy of each class variable per class, regardless of how many objects are created from it.

Method Overloading and Overriding

40. What is the other name of Method Overloading?

Static Polymorphism.

41. How will you implement method overloading in Java?

Method overloading allows the method to have the same name which differs on the basis of arguments or the argument types. It can be related to compile-time polymorphism.

42. What kinds of argument variations are allowed in Method Overloading?

Different Ways to Overload a Method

- Number of parameters.
- The data type of parameters.
- The sequence of Data type of parameters.

43. Why it is not possible to do method overloading by changing return type of method in java?

Method overloading is not possible by changing the return type of the method only **because of ambiguity**.

44. Is it allowed to overload main() method in Java?

Yes, we can overload the main method in Java, but When we execute the class JVM starts execution with public static void main (String[] args) method.

45. How do we implement method overriding in Java?

If subclass (child class) has the same method as declared in the parent class, it is known as **method overriding in Java**. In other words, If a subclass provides the specific implementation of the method that has been declared by one of its parent class, it is known as method overriding. (The method must have the same name, same parameter as in the parent class. There must be an IS-A relationship (inheritance))

46. Are we allowed to override a static method in Java?

The static method is resolved at compile time cannot be overridden by a subclass. An instance method is resolved at runtime can be overridden. A static method can be overloaded.