

Java

1. What is java?

- Java is a simple programming language.
- Writing, compilation and debugging a program is very easy in java.
- It helps to create reusable code.
- It is a platform independent and open source.
- It runs multiple application at a time.

2. What are the main features of java?

- Platform independent
- Open source
- Multithreading
- More secure
- Portable

3. What is platform independent?

- During the compilation the java program converts into byte code.
- Using byte code we can run the application to any platform such as Windows, Mac, Linux, etc.

4. What are types of tools are used to execute java?

- Notepad
- Net bean
- Eclipse
- J Developer(Oracle)
- RAD(IBM)

5. What are difference between JDK, JVM, JRE?

JDK:

- Java Development Kit.
- If we want to run any applications in java we need JDK have to installed.
- JDK versions: 1.0 to 1.10.

JRE:

- Java Runtime Environment.
- It is a pre-defined class files (i.e.) library files.

JVM:

- Java Virtual Machine.
- It is mainly used to allocate the memory and compiling.

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6. What is mean by OOPS?

- OOPS is Object Oriented Programming Structure.
- OOPS is a method of implementation in which programs are organized as collection of objects, class and methods.
- Encapsulation, Abstraction, Inheritance and Polymorphism.

7. What are the coding Standard used in java?

Pascal notation:

Each and every word of the first letter should be in capital.

Example: InmakesInfotech

Camel notation:

First word should be small after every word of the first letter should be capital.

Example: inmakesInfotech

8. What is mean by class, method, object?

Class:

Class is nothing but collection of methods or collection of objects.

Method:

Method is nothing but set of action to be performed.

Object:

- Object is the run time memory allocation.
- Using object, we can call any methods.

9. What is mean by Encapsulation?

- It is the structure of creating folders.
- It wraps the data and code acting on a data together in to a single unit.
- Example of encapsulation POJO class.

10. What are the datatypes used in java?

1. byte
2. short
3. int
4. long
5. float
6. double
7. boolean
8. char
9. String

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11. What is mean by Wrapper class?

- Classes of data types is called wrapper class.
- It is used to convert any data type into object.
- All classes and wrapper classes default value is Null.

12. What is the main use of Scanner class?

- For getting the inputs from the user at the run time.

13. What are the methods available in Scanner Class?

1. nextByte();
2. nextShort();
3. nextInt();
4. nextLong();
5. nextFloat();
6. nextDouble();
7. nextcharAt();
8. next();
9. nextLine();
10. nextBoolean();

14. What is mean by inheritance?

- We can access one class property into another class using 'extend' key word and reusable purpose.
- It avoids memory wastage.

15. What is mean by polymorphism?

- Poly-many, Morphism-forms.
- Taking more than one forms is called polymorphism or one task completed by many ways.

16. What are the difference between method overloading and overriding?

Method overloading (static binding/compile time polymorphism):

- Class-same
- Method-same
- Argument-differ based on datatype, order, number

Method overriding (dynamic binding/run time polymorphism):

- Class name-differ (using extends)
- Method-same
- Argument-same

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17. What are the types of inheritance?

- Single Inheritance
- Multilevel Inheritance
- Multiple Inheritances
- Hybrid Inheritance
- Hierarchical Inheritance

18. Why multiple inheritance is not supported in java?

- Priority problem
- Compilation error/syntax error
- (I.e.) if both parent class having same method name it will get priority problem, so it doesn't work in java.

19. What are the difference between Multiple and Multilevel inheritance?

Multiple inheritance:

- Combination of more than one parent class directly supported one child class.
- It won't work in java due to priority problem.

Multilevel inheritance:

- Combination of more than one parent class and child class using tree level structure.
- It works in java.

20. What is mean by access specifier?

It decides the level of access to the variable, method and class.

21. What are the difference between public and protected?

Public:

It is global level access (same package + different package).

Protected:

Inside package + outside Package (Extends).

22. What is mean by Abstraction?

- Hiding the implementation part is called abstraction.
- We won't create object for the Abstract class.
- It contains simply template and business logic is presented inside.

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22. What are the types of Abstraction?

- Partially abstraction (abstract class).
- Fully abstraction(interface).

23. Can we create Object for Abstract class?

No, we can't create object for abstract class.

24. What is mean by Interface?

- It will support only abstract method, won't support non-abstract method.
- In interface "public abstract" is default. we no need to mention.
- We have to use implement keyword.

25. What are the difference between Abstract and Interface?

Abstract class:

- It is partially abstraction.
- It supports both abstract method and non-abstract method.
- It's using "extends" keyword.
- Here "public abstract" must mention.
- We can use whatever access specifier we want.

Interface:

- It is fully abstraction.
- It supports only abstract method.
- It's using "implement" keyword.
- "public Abstract" is default no need to mention.
- Here we use only public (access specifier).

26. What is mean by String?

Collections of character or word enclosed with double quotes is called as String.

Example: "inmakesinfotech"

27. What are the method available in string?

1. Equals();
2. Equalsignorecase();
3. contains();
4. split();
5. toUpperCase();
6. toLowerCase();

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- 7. subString();
- 8. isEmpty();
- 9. identifyHashCode();
- 10. startsWith();
- 11. endsWith();
- 12. CompareTo();
- 13. charAt();
- 14. indexOf();
- 15. lastIndexOf();
- 16. replace();

28. What is mean by constructor?

- Class name and constructor name must be same.
- It doesn't have any return type.
- We don't want to call constructor which is creating object itself.
- It will automatically invoke the default constructor.
- It will support in method overloading but won't support in method overriding.

29. Explain the types of constructor?

- Parameterized constructor
- Non-parameterized constructor

30. Do constructors have any return type?

No, constructor can't have any return type.

31. Write a syntax for creating constructor?

```
Access specifier classname(){
}
```

32. What are the rules for defining a constructor?

- Class name and constructor name must be same.
- It doesn't have any return type.

33. Why a return type is not allowed for constructor?

- Constructor is not directly called by your code, it's called by memory allocation and object initialization in the run time.
- Its return value is opaque to the user, so we can't mention it.

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34. Can we declare constructor as 'private'?

Yes, we can declare constructor as private.

35. Why a compiler given constructor is called as default constructor?

If we won't pass the constructor explicit it will take the default constructor.

36. What is constructor chaining and how can it be achieved in Java?

- The process of calling one constructor from another constructor with respect to current object is called constructor chaining.
- By using this() we can achieve constructor chaining.

37. What are the difference between this() and super()?

- this() is used to call class level constructor.
- super() is used to call the constructor in parent class.

38. What is the super class of all java, exception and error?

- Object is the super class of all java.
- Throwable
- Exception

39. What are the types of variable?

- Local level variable.
- Class level variable.
- Super level variable.

40. What is meant by local variable, instance variable, class/static variable?

- Static Variable-It is used for sharing the same variable or method of a given class.
- Local Variable-It will declare below the main method.
- Class variable-It will access only with in the class

48. Where local, static and class variables store in jvm?

- Static variables are stored in the permGen section of heap memory.
- Local variables are stored in stack.
- Class variables are stored in heap memory.

41. What is mean by static keyword in java?

- The static keyword is mainly used for memory management.
- It is used for sharing the same variable or method of a given class.

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42. Can we override static method in java?

No, we can't override the static method because it is part of a class rather than an object.

43. Can we overload static method in java?

Yes, we can overload the static method in java.

44. What is mean by static variable?

- When a variable is declared as static, then a single copy of variable is created and shared among all object at class level.
- Static variable is essentially, global variable.
- All the instance of the class shares the same static variable.

45. What is mean by static method?

- Static method in java belong to the class (not to an object).
- They use no instance variables and will usually take the input from the parameters and perform action on it, then return some result.

46. What is mean by final keyword and what's happened when we declare final as in class, method, variable?

- Final is a non-access modifier applicable only to a variable, a method or a class.
- When a variable is declared with final keyword, its value can't be modified essentially a constant.
- When a method is declared as final we can prevent method overriding.
- When a class is declared as final we can prevent inheritance.

47. What is difference between final and finally keyword?

Final:

- Final variable can't be modified.
- Final method can't be override.
- Final class can't be inherited.

Finally:

- Finally part will executed the important code whether the exception is handled or not.

54. What is Exception?

Exception is like an error, whenever it occur the program will terminated that line itself.

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55. Explain about types of Exception?

- Unchecked exception (Run time exception)
- Checked exception (Compile time exception)

56. What are the difference between checked exception and unchecked exception?

Unchecked exception:

*It will occur at the Run time exception.

Checked exception:

*Checked exception will occur at the Compile time exception.

58. Can we have try block without catch block?

No, we haven't try block without catch block.

59. Can we write multiple catch blocks under single try block?

Yes, we write multiple catch blocks under single try block.

60. How to write user defined exception or custom exception in java?

```
access specifier method name throws customException {
    throw new customException();
}
```

61. What are the different ways to print exception message on console?

ref.printStackTrace() method is used to print the exception message from the console.

62. What are the differences between final finally and finalize in java?

Final:

- A final class variable whose value cannot be changed.
- A final is declared as class level, they cannot be inherited.
- If final is declared as method level, they cannot be override.

Finally:

- It's a block of statement that executes after the try catch block.
- If try block fails means, the final block will executes once.

Finalize:

- It will clean up processing memory space.

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63. What are the differences between throw and throws?

Throw:

- Throw is a keyword, we can through any exception inside the method.
- At a time, we can throw only one exception.

Throws:

- Throws is a keyword, it is used to declare the exception (in method level).
- At a time, we can declare more than one exception.

64. Explain Java Exception Hierarchy?

Unchecked exception (Run time exception)

1. ArithmeticException
2. NullPointerException
3. InputMismatchException
4. ArrayIndexOutOfBoundsException
5. StringIndexOutOfBoundsException
6. IndexOutOfBoundsException
7. NumberFormatException

Checked exception (Compile time exception)

1. IOException
2. SQLException
3. FileNotFoundException
4. ClassNotFoundException

65. What is mean by throw and throws?

- Throw and Throws is a keyword used to declare the custom exception in java.
- Throw is a keyword, we can through any exception inside the method.
- Throws is a keyword, it is used to declare the exception (in method level).

66. What is mean by array?

- Storing multiple values of similar datatype in a single variable.
- It is index based one.

67. What are the advantages and disadvantages of array?

Advantage:

In a single variable we can store multiple values.

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Disadvantages:

- It supports only similar data types.
- It is a fixed size one.
- Memory wastage is high.

68. Write a code to initialize array?

```
Datatype refName[] = new Datatype[size];
Datatype refname = { };
```

69. Can we change the memory size of array after initialization?

No, we can't change the memory size of array after initialization.

70. What is collection?

- It will support dissimilar data types.
- It is dynamic memory allocation.
- No memory wastage like array.

71. What is the difference between ArrayList and Vector?

ArrayList:

- Asynchronized
- It is not a thread safe

Vector:

- Synchronize
- Thread safe

72. What is the difference between ArrayList and LinkedList?

LinkedList:

- Insertion and deletion are a best one.
- Searching/retrieving is a worst.
- It's makes performance issue.

ArrayList:

- In ArrayList retrieve/searching is a best one
- In ArrayList deletion and insertion is a worst one because if we delete/insert one index value after all the index move to forward/backward.
- It makes performance issue.

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73. Describe the Collections type hierarchy? What are the main interfaces

List:

1. ArrayList
2. LinkedList
3. Vector

Set:

1. HashSet
2. LinkedHashSet
3. TreeSet

Map:

1. HashMap
2. LinkedHashMap
3. Hashtable
4. TreeMap

74. What is difference between set and List?

Set:

- It is a value based one.
- It prints in random order.
- It won't allow duplicate.

List:

- It is an Index based one.
- It prints in insertion order.
- It allows duplicate.

75. What is the difference between HashSet and TreeSet?

HashSet:

It prints in random order.

TreeSet:

It prints in insertion order.

76. How to convert List into Set?

By `addAll()` we can convert List into set.

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77. What is map?

- It is key and value pair.
- Here key + value is a one entry.
- Key ignore the duplicate value and value allow the duplicate.

78. What is difference between Hash Map and Hash Table?

HashMap:

- Key allows single null.
- Asynchronies (not thread safe).

HashTable:

- Key and value won't allow null.
- Synchronize (thread safe).

79. What is difference between set and Map?

Set:

- It is a value based one.
- It prints in random order.
- It won't allow duplicate.

Map:

- It is key and value pair.
- Here key + value is a one entry.
- Key ignore the duplicate value and value allow the duplicate.

80. Can we iterator the list using normal for loop?

Yes, we can iterator the list using both normal and by using enhanced for loop.

81. What are the methods available in list but not in set?

- `indexOf()`;
- `get()`;
- `lastIndexOf()`;

82. Explain about user defined Map?

- It is key and value pair.
- Here key + value is a one entry.
- Key ignore the duplicate value and value allow the duplicate.

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83. How much null allows in below maps:

HashMap	: k ?, v ?
LinkedHashMap	: k ?, v ?
TreeMap	: k ?, v ?
HashTable	: k ?, v ?

HashMap	: k-1 null, v- n null
LinkedHashMap	: k-1 null, v- n null
TreeMap	: k-ignore null, v- ignore null
HashTable	: k-ignore null, v- ignore null

84. How to Iterate Map?

We can iterate the map by using `entrySet()` method.

85. What is the return type of `entrySet`?

`Set<Entry<key,value>>`

86. Write the methods to get the key only and value only?

- For key only `keySet()` method is used.
- For value only `values()` method is used.

87. What is mean by File? In which package it is available?

- File is a class and it is used to perform the file operation.
- It is available in `java.io` package.

88. What are the methods available in File?

- `mkdir();`
- `mkdirs();`
- `list();`
- `createNewFile();`
- `isDirectory();`
- `isFile();`
- `isHidden();`

89. While creating a file if we not mention the format then under which format it will save the file?

If we not mention the file format it will automatically take format as file.

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90. What are the difference between append and updating the file?

- For updating the file:
- It will replace the old content of file.
- For appending the file:
- It will add the content at the end of file.

92. What is mean by Enumerator, Iterator and List Iterator?

Enumeration:

- It is a legacy interface and it is used before jdk version 1.4(old version).

Iterator:

- It is an Interface used to iterate the class ArrayList, linkedlist.

List Iterator:

- It is an interface used for iterating list only.
- It has backward direction special features (go back to the previous element).

93. Difference between Enumerator, Iterator and List Iterator?

Enumerator:

- contain legacy class and method
- work on jdk before 1.4
- no remove method is available.
- no Backward direction is possible

Iterator:

- contain normal class and method
- work on jdk after 1.4
- remove method is available.
- no Backward direction is possible.

ListIterator:

- contain normal class and method
- work on jdk after 1.4
- remove method is available.
- Backward direction is possible.

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94. What are the methods available in Enumerator, Iterator and List Iterator?

Enumerator Methods:

- hasMoreElements();
- nextElement();

Iterator Methods:

- hasNext();
- next();
- remove();

ListIterator Methods:

- hasNext();
- next();
- remove();
- hasPrevious();
- previous();

95. Explain JDBC connection steps?

Import JDBC packages.

- Load and register the JDBC driver.
- Open a connection to the database.
- Create a statement object to perform a query.
- Execute the statement object and return a query result set.
- Process the result set.
- Close the result set and statement objects.
- Close the connection.

96. What are control statement?

Statement which has control over the loop or program is called control statements.

Example: if, if else.

97. Difference between

Break and continue.

Break:

- It will terminate where the condition become true.
- It will not use inside the loop other than switch case.

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Continue:

- It will skip the condition become true and keep executing the loop.
- It will not used inside the loop

while and do while

While:

- It is entry check loop.

Do While:

- It is an exit check loop.

if and if else

if

- Execute only when the condition become true.

if else

- Execute the else part when then condition become false and execute if part when condition become true.

Immutable and Mutable string

Immutable string:

- We can store more duplicate value in same memory
- We can't change the value in memory
- In concord nation, we have to create new memory

Mutable string:

- We can't store duplicate value in same memory
- We can change the value in memory
- In concordnation, its takes same memory

removeAll() and retainAll()

removeAll():

removeAll() is a method , it is used to compare the both list and remove all the list1 values in list

retainAll():

retainAll() is a method, it is used to compare both list and print the common values

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Literal String and Non-literal string

Literal String:

- Its stored inside the heap memory (string pool or string constant).
- It shares the memory if same value (duplicate value)

Non-literal string:

- It's stored in the heap memory.
- Its create a new memory every time even if its duplicate value(same value)

Heap and stack memory

Heap memory:

- Heap for dynamic memory allocation.
- Memory access is slow.

Static memory:

- Stack is used for static memory allocation.
- Variables allocated on the stack are stored directly to the memory and access to this memory is very fast.

98. What is the default Package in java?

java.lang

99. What are the difference between equals() & hashCode()?

Equals:

Used to compare the two string.

HashCode:

Used to return the address where it stored.

100. How can we make Array list As a synchronized?

collections.SynchronisedList(refName of array);

101. List Methods

1. add()
2. size()
3. get(index)
4. add(index,value)
5. set(index,value)
6. remove(index)

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- 7. contains(value)
- 8. isEmpty()
- 9. indexOf(value)
- 10. lastIndexOf(value)
- 11. clear()
- 12. addAll(listRefVar)
- 13. retainAll(listRef)
- 14. removeAll(listRef)