Cracking the Coding Interview Java

60 Java Programming Questions and Answers

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Introduction

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About Author

This book is dedicated to all java programmers.

Introduction

We present 60 interesting java programming interview questions and answers for readers to practice and crack any java interview. The reader is encouraged to try the programming questions himself/herself before checking the answers.

Java Interview Question-1.   What is output of following program? byte[] a = {1,2,3}; byte [] b = (byte[]) a.clone(); print(a==b)

Answer: False

Java Interview Question-2.   Can you have virtual function in java?

Answer: Yes, all non static functions are virtual

Java Interview Question-3.   Can a lock be acquired on a class?

Answer: Yes, by using synchronized static method

Java Interview Question-4.   What pattern will you use to improve following code if (object instanceof a) dosomethiga if (object instanceof b) dosomethigb

Answer: We can use visitor pattern

Java Interview Question-5.   How to provide secure web services?

Answer: We can use HTTPS protocol

Java Interview Question-6.   What is wsdl used for?

Answer: wsdl is used to describe the structure of client request and server response

Java Interview Question-7.   Is java call by value or call by reference

Answer: Java uses reference for object, value for primitive

Java Interview Question-8.   What is the output of the below code and explain?

```
public static void main(String[] args) {
    Employee e = new Employee();
    e.setEname("PPPP");
    int i = 99;
  testO(e, i);
```

```
  System.out.println(e.getEname());   System.out.println(i); 99
}


public static void testO(Employee e, int i) {
   e.setEname("AAAA");
   i = 100;
}
```

Answer: AAAA (Call by reference), 99(Call by value)

Java Interview Question-9.   What is the difference between Web Server and Application Server?

Answer: Web Server can host web applications only. Application server can host both web and non web applications supporting protocols other than HTTP e.g. RMI, RPC, etc.

Java Interview Question-10. Write a sample code to print the below pattern where n is number of rows.

```
    *
    * *
    * * *
    * * * *
```

Answer:

```
for(int i=1; i<=n; i++) {
for(j=0; j<i;j++) {
System.out.print(*);
}
System.out.print("\n");
}
```

Java Interview Question-11. Write the code for above pattern using java recursion

Answer: public static void printStar(int n) {
```
   if(n <= 1) { System.out.print("*");}
   else {
```

```
printStar(n-1);
for(int i=0;i< n;i++) {
System.out.print("*");
}
}
System.out.print("\n");
}
```

Java Interview Question-12. What is transient variable?

Answer: Transient variable can't be serialized.

Java Interview Question-13. Is Iterator a Class or Interface? What is its use?

Answer: Iterator is an interface to iterate through the elements of a collection.

Java Interview Question-14. What is similarities/difference between an Abstract class and Interface?

Answer: Differences are as following:

- A class can implement as many interfaces as it wants but it can extend only one abstract class
- Interfaces can define public methods and constants only. Abstract class can have protected, static, etc. methods

Similarities:

- We cannot instantiate either abstract class or interface

Java Interview Question-15. Describe the principles of OOPS.

Answer: Encapsulation, Inheritance and Polymorphism are 3 main principles of OOPS

Encapsulation provides a way to hide data and methods.

Inheritance provides a way to reuse existing parent classes by its child classes.

Polymorphism provides a way to overload and override existing methods

Java Interview Question-16. What all access specifiers are available in Java?

Answer: Following access specifiers are available in Java

- Public

- Protected

- Private

- Default

Java Interview Question-17.   Describe the wrapper classes in Java

Answer: Wrapper helps wrapping a primitive data type into a class

Here are the inbuilt wrapper classes provided by Java.

Primitive	Wrapper
Boolean	java.lang.Boolean
Byte	java.lang.Byte
Char	java.lang.Character
Double	java.lang.Double
Float	java.lang.Float
Int	java.lang.Integer
Long	java.lang.Long
Short	java.lang.Short
Void	java.lang.Void

Java Interview Question-18. What is the output of below program

```
public class test {
public static void main(String [] args) {
    int x = 3;
    int y = 1;
    if (x = y)
    System.out.println("Not equal");
  else
    System.out.println("Equal");
 }
}
```

What is the result?

    A. The output is "Equal"

    B. The output in "Not Equal"

    C. An error at " if (x = y)" causes compilation to fall.

    D. The program executes but no output is show on console.

Answer: C

Java Interview Question-19. What is the class variable?

Answer: Static variables are called class variable

Java Interview Question-20. What is the difference between the instanceof and getclass

Answer: instanceof is a operator, not a function while getClass is a method of java.lang.Object class. As example

 o.getClass().getName().equals("java.lang.Math")) checks if the o's class name is java.lang.Math. But

(o instanceof java.lang.Math) checks whether object o is instance of java.lang.Math

Java Interview Question-21. What is Externalizable?

Answer: Externalizable extends Serializable Interface. It allows user to send and receive data using compressed format using writeExternal and readExterna methods

Java Interview Question-22. What are the different identifier states of a Thread?

Answer: The different identifiers of a Thread are: R - Running or runnable thread, S - Suspended thread, CW - Thread waiting on a condition variable, MW - Thread waiting on a monitor lock, MS - Thread suspended waiting on a monitor lock

Java Interview Question-23. What are some alternatives to inheritance?

Answer: Delegation is an alternative to inheritance.

Java Interview Question-24. Why isn't there operator overloading?

Answer: Java learnt from C++ that allowing developers to overload operator makes the codebase more difficult to understand and maintain

Java Interview Question-25. Is null a keyword?

Answer: The null value is not a keyword.

Java Interview Question-26. Which characters may be used as the second character of an identifier, but not as the first character of an identifier?

Answer: The digits 0 through 9 may not be used as the first character of an identifier but they may be used after the first character of an identifier.

Java Interview Question-27. How many bits are used to represent Unicode, ASCII, UTF-16, and UTF-8 characters?

Answer: Unicode requires 16 bits and ASCII require 7 bits. Although the ASCII character set uses only 7 bits, it is usually represented as 8 bits. UTF-8 represents characters using 8, 16, and 18 bit patterns. UTF-16 uses 16-bit and larger bit patterns.

Java Interview Question-28. When and on what conditions will you decide whether to use linked lists or arrays

Answer: Following factors are considered to choose between array and linked list

a)Memory: All memory get allocated in one go for array, linked list's memory is dynamically allocated

b) Accessing Elements: Any element can be accessed in constant time for array, but it take O(n) time to access an element in linked list

c) Addition/Deletion of elements: Whole array needs to be shifted to delete/insert element in array, linked list provides in built capabilities to add/delete element

d) Sorting: Array can be sorted faster than that of linked list

Java Interview Question-29. What is Difference between Vector and ArrayList?

Answer: Vector is synchronized but ArrayList is not

Java Interview Question-30. What's the difference between a queue and a stack?

Answer: Stack is a data structure that is based on last-in-first-out rule, while queues are based on First-in-first-out rule

Java Interview Question-31. What is difference between array & arraylist?

Answer: An ArrayList is resizable- an array is not. ArrayList can store any object, Array can store similar objects.

Java Interview Question-32. Can you limit the initial capacity of vector in java?

Answer: Yes, by using below constructor

public vector(int capacity)?

Java Interview Question-33. What is the difference between Enumeration and Iterator?

Answer: Iterator has a remove() method while Enumeration doesn't. Enumeration provides read only interface.

Java Interview Question-34. What is Does the code in finally block get executed if there is an exception and a return statement in a catch block

Answer: finally block is executed, no matter whether or not an exception is thrown or caught. If an exception occurs and there is a return statement in catch block, the finally block is still executed. Only if process exits or process runs out of memory, finally block does not get executed.

Java Interview Question-35. Create a class for which maximum two instances can be created

Answer: public class myClass

{

static int counter=0;

myClass ()

{ counter ++;

```
if(counter >2)
throw new Exception()
}
```

Java Interview Question-36.   Which of the following are not Java keywords?

- if
- then
- end
- while
- case

Answer: then, end

Java Interview Question-37. Which of the following are not valid java identifiers?

- 4ofAU
- GiveMe6
- _whatQuiz
- _2030_
- $intheATM
- #dahuk

Answer: 4ofAU, #dahuk

Java Interview Question-38.   Which of the following lines will compile without warning or error?

- float f=3.164;
- char c="c";
- boolean b=null;
- int i=10;
- int j=10.0;

Answer: int i=10;

Java Interview Question-39. Which of the following will output 19.0?

- System.out.println(Math.floor(19.7));
- System.out.println(Math.round(19.7));
- System.out.println(Math.ceil(19.7));

- System.out.println(Math.abs(19.7));

Answer: System.out.println(Math.floor(19.7));

Java Interview Question-40. What will happen if you try to compile and run the following code

Public class Test() {

Public static void main(String args[]) {

Int myArray= new int[5];

System.out.println(myArray[0]);

}

}

    A. Error: anArray is referenced before it is initialized

    B. null

    C. 0

    D. 5

Answer: C

Java Interview Question-41. Which of the following are true

    A. ArrayList Is thread safe

    B. Vector is Thread Safe

    C. ArrayList and Vector are both List

    D. Both Vector and ArrayList uses array as their data structure

    E. Vector doubles its size , but ArrayList only increases the capacity to half of current size

    F. Vector and ArrayList both implements RandomAccess

Answer: B, C, D, E, F

Java Interview Question-42. What is the output of the following program ?

import java.util.HashMap;

import java.util.Map;

public class MapTest {

  public static void main(String aga[]){

    Map m= new HashMap();

```
    m.put(null, "Test");
    m.put(null,"Fest");
    System.out.println(m);
  }
}
```

     A. {null=Fest}

     B. NullPointerException at 6

     C. {null=Test}

     D. Compilation error at 7 and 8

     E. Compilation error at 8 , about can't override the value "Test"

Answer: A

Java Interview Question-43. Which of the following are true

     A. Hashtable is synchronized but HashMap is not

     B. Hashtable won't allow either null key or null value, but HashMap allows one null key and multiple null values

     C. Hashtable is a legacy class

     D. Iterator in HashMap is Fast-fail where as enumerator is fail safe in HashTable

Answer: All are true

Java Interview Question-44. Which of the following is associated with Enumeration?

     A. Vector

     B. HashMap

     C. Hashtable

     D. SortedSet

Answer: A and C

Java Interview Question-45. Given the following declaration and instantiation of a 2D array: int[][] myarray = new int[2][3]; What code below would correctly initialize all elements of the second row of values of 11?

     A. myarray [1] = {11,11,11);

     B. myarray [1][0] = myarray [1][1] = myarray [1][2] = 11;

     C. myarray [1][0] = 11; myarray [1][1] = 11; myarray [1][2] = 11;

     D. myarray [1] = new{11,11,11};

     E. for (int i=0; i< myarray [1].length;i++) myarray [1][i] = 11;

Answer: B,C,E

Java Interview Question-46. A class must always define at least one constructor.

    A. True

    B. False

Answer: B

Java Interview Question-47.   What will be the output of the program?

```
class A
{
    final public int GetResult(int a, int b) { return 0; }
}
class B extends A
{
    public int GetResult(int a, int b) {return 1; }
}
public class Test
{
    public static void main(String args[])
    {
    B b = new B();
    System.out.println("x = " + b.GetResult(0, 1));
    }
}
```

A. x = 0

B. x = 1

C. Compilation fails.

D. An exception is thrown at runtime.

Answer: C(GetResult method is final, hence cannot be overridden)

Java Interview Question-48. What will be the output of the program?

```
class Test
{
    public static void main(String [] args)
```

```
    {
    Test s = new Test();
    s.start();
    }

    void start()
    {
    int a = 4;
    int b = 5;
    System.out.print(" " + 8 + 3 + " ");
    System.out.print(a + b);
    System.out.print(" " + a + b + " ");
    System.out.print(foo() + a + b + " ");
    System.out.println(a + b + foo());
    }

    String foo()
    {
    return "foo";
    }
}
```

A. 9 7 7 foo 7 7foo

B. 72 34 34 foo34 34foo

C. 9 7 7 foo34 34foo

D. 83 8 45 foo45 8foo

Answer: D(Expressions are evaluated from left to right)

Java Interview Question-49. What will be the output of the program?

```
class myArray
{
    boolean [] b = new boolean[3];
    int count = 0;
    void set(boolean [] x, int i)
```

```java
    {
    x[i] = true;

    ++count;

    }

    public static void main(String [] args)

    {

    myArray ma = new myArray();

        ma.set(ma.b, 0);

    ma.set(ma.b, 2);

    ma.test();

    }

    void test()

    {

    if ( b[0] && b[1] | b[2] )

    count++;

    if ( b[1] && b[(++count - 2)] )

    count += 7;

    System.out.println("count = " + count);

    }

}
```

A. count = 0

B. count = 2

C. count = 3

D. count = 4

Answer: C (b and x refers to same Boolean array)

Java Interview Question-50. What is output of below program?

```java
public void foo( boolean a, boolean b)

{

  if( a )

  {

  System.out.println("A"); /* Line 5 */

  }
```

```java
else if(a && b) /* Line 7 */
{
System.out.println( "A && B");
}
else /* Line 11 */
{
if ( !b )
{
System.out.println( "not B") ;
}
else
{
System.out.println( "ELSE" ) ;
}
}
}
```

A. If a is true and b is true then the output is "A && B"

B. If a is true and b is false then the output is "not B"

C. If a is false and b is true then the output is "ELSE"

D. If a is false and b is false then the output is "ELSE"

Answer: C

Java Interview Question-51. What will be the output?

```java
Float f = new Float("12");
switch (f)
{
    case 12: System.out.println("Twelve");
    case 0: System.out.println("Zero");
    default: System.out.println("Default");
}
```

A. Zero

B. Twelve

C. Default

D. Compilation error

Answer: D(Only integer can be used in switch)

Java Interview Question-52. What will be the output of the program?

```java
class MyThread extends Thread
{
   public static void main(String [] args)
   {
   MyThread t = new MyThread();
     t.start();
   System.out.print("one. ");
   t.start();
   System.out.print("two. ");
   }
   public void run()
   {
   System.out.print("Thread ");
   }
}
```

 A. Compilation fails

 B. An exception occurs at runtime.

 C. It prints "Thread one. Thread two."

 D. The output cannot be determined.

Answer: B(When the start() method is attempted a second time on a single Thread object, the method will throw an IllegalThreadStateException)

Java Interview Question-53. What will be the output of the program?

```java
class Test implements Runnable
{
```

```java
    int x, y;
    public void run()
    {
    for(int i = 0; i < 1000; i++)
    synchronized(this)
    {
            x = 16;
    y = 16;
    }
    System.out.print(x + " " + y + " ");
    }
    public static void main(String args[])
    {
    Test run = new Test();
    Thread t1 = new Thread(run);
    Thread t2 = new Thread(run);
    t1.start();
    t2.start();
    }
}
```

A. Dead Lock

B. It prints 16 16 16 16

C. Compilation Error

D. Cannot determine output.

Answer: B

Java Interview Question-54. What will be output of the below program

```java
public class Test
{
    public static void main(String [] args)
    {
```

```
   String s = "52";
   try
   {
   s = s.concat(".4");  /* Line 8 */
   double d = Double.parseDouble(s);
   s = Double.toString(d);
   int x = (int) Math.ceil(Double.valueOf(s).doubleValue());
   System.out.println(x);
   }
   catch (NumberFormatException e)
   {
   System.out.println("bad number");
   }
   }
}
```

A. 52

B. 52.5

C. 53

D. Bad number

Answer: C

Java Interview Question-55. What will be the output of this program

```
public class Test
{
   public static void stringReplace (String text)
   {
     text = text.replace ('j' , 'k');
   }
   public static void bufferReplace (StringBuffer text)
   {
```

```
        text = text.append ("k");
    }
    public static void main (String args[])
    {
    String textString = new String ("java");
    StringBuffer textBuffer = new StringBuffer ("java");
    stringReplace(textString);
    bufferReplace(textBuffer);
    System.out.println (textString + textBuffer);
    }
}
```

A. java

B. javak

C. javajavak

D. Compilation error

Answer: C(String is immutable, StringBuffer is not)

Java Interview Question-56. What will be the output of this java program

```
public class Test
{
    public static void main(String [] args)
    {
    Boolean b1 = new Boolean("false");
    boolean b2;
    b2 = b1.booleanValue();
    if (!b2)
    {
    b2 = true;
    System.out.print("a");
    }
    if (b1 & b2) /* Line 13 */
```

```java
    {
        System.out.print("b ");
    }
    System.out.println("c");
    }
}
```

A. c

B. a c

C. b c

D. Compilation error

Answer: C

Java Interview Question-57. Which line is an example of an inappropriate use of assertions?

```java
public class Test
{
    public static int x;
    public static int foo(int y)
    {
    return y * 2;
    }
    public static void main(String [] args)
    {
    int z = 6;
    assert z > 0; /* Line 11 */
    assert z > 2: foo(z); /* Line 12 */
    if ( z < 7 )
    assert z > 4; /* Line 14 */

    switch (z)
    {
    case 4: System.out.println("4 ");
```

```
        case 6: System.out.println("6 ");
        default: assert z < 10;
        }


        if ( z < 10 )
        assert z > 4: z++; /* Line 22 */
        System.out.println(z);
        }
}
```

A. Line 11

B. Line 12

C. Line 14

D. Line 22

Answer: D (Assert statement should not cause side effects)

Java Interview Question-58. What will be the output of the program?

```
public class Test
{
    public static int y;
    public static void foo(int x)
    {
    System.out.print("foo ");
    y = x;
    }
    public static int bar(int z)
    {
    System.out.print("bar ");
    System.out.print("bar ");
    return y = z;
    }
    public static void main(String [] args )
    {
```

```java
    int t = 0;
    assert t > 0 : bar(7);
    assert t > 1 : foo(8); /* Line 18 */
    System.out.println("done ");
    }
}
```

A. bar

B. bar done

C. foo done

D. Compilation error

Answer: D (foo is void)

Java Interview Question-59. Which statement is true for java.util.ArrayList?

 A. The elements in the collection are ordered.

 B. The collection is guaranteed to be immutable.

 C. The elements in the collection are guaranteed to be unique.

 D. The elements in the collection are accessed using a unique key.

Answer: A

Java Interview Question-60. Which line of code from the below snippet is suitable to start
   a thread ?

```java
class X implements Runnable
{
    public static void main(String args[])
    {
    /* Fill in the function */
    }
    public void run() {}
}
```

 A. Thread t = new Thread(X);

 B. Thread t = new Thread(X); t.start();

C. X run = new X(); Thread t = new Thread(run); t.start();

D. Thread t = new Thread(); x.run();

Answer: C

Conclusion

Hope this java programming interview questions and answers book makes you better prepared for next interview. Please devote some time to write new java programs on a daily basis. This will help you to keep up to date with latest java programming developments.

About Author

Chinmoy is an author, innovator, entrepreneur and solution architect. He has written dozen books on "software technology", "social science" and "adult coloring". He loves mentoring people. Please feel free to contact him at http://www.linkedin.com/in/chinmoym