Coding Interview Questions and Answers

This book is dedicated to all software professionals of the world.

may quote brief passages embodied in critical articles or in a review.

Introduction

We present 240 challenging data structures, algorithm, code optimization, java, database and C programming interview questions and answers for IT professionals to practice. This book will help you crack any programming interview. The reader is encouraged to solve the problem himself/herself before checking the answers.

Sample "Coding Interview Questions and Answers" can be downloaded from the website http://crackingthecodinginterview.in/

Java Interview Questions and Answers

51.   What is output of following program?

```java
void f() {
    byte[] a = {1, 2, 3};
    byte[] b = (byte[]) a.clone();
```

```
System.out.print(a == b);
    }
```

Answer: False

52.   Can you have virtual function in java?

Answer: Yes, all non-static functions are virtual

53.   Can a lock be acquired on a class?

Answer: Yes, by using synchronized static method

54.   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

55.   How to provide secure web services?

Answer: We can use HTTPS protocol

56.   What is wsdl used for?

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

57. Is java call by value or call by reference

Answer: Java uses reference for object, value for primitive

58. What is the output of the below code and explain?

```java
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);
    }


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

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

59.   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.

60.   Write a sample code to print the below pattern where n is number of rows.

```
*

* *

* * *

* * * *
```

Answer:

```
void f() {
    for(int i=1; i<=n; i++) {
        for(j=0; j<i;j++) {
```

```java
            System.out.print('*');
        }
        System.out.print('\n');
    }


}
```

61. Write the code for above pattern using java
     recursion

```java
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");
}
```

Answer: What is transient variable?

Answer: Transient variable can't be serialized.

62.　Is Iterator a Class or Interface? What is its use?

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

63.　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:

64. We cannot instantiate either abstract class or interface

65. 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

66. What all access specifies are available in Java?

Answer: Following access specifies are available in Java

- Public

- Protected

- Private

- Default

67.   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

68. What is the output of below program

```java
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");
    }
}
```

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

69.   What is the class variable?

Answer: Static variables are called class variable

70.   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

71.   What is Externalizable?

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.

72.   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

Conclusion

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

About Author

I am Chinmoy Mukherjee working in software industry for past 17 years in India, Canada, USA and Australia. I have written more than 100k lines of code, worked in 16 software projects as "Individual Contributor" in 12 companies (Motorola, HP, Infineon, Cisco, etc.). I have attended 20+ interviews and cleared 70% of the interviews. I hold few interesting patents "New Smartphone Design", "Locating Anonymous Objects", etc. I have published many international papers publication on mHealth, "Information Security ", etc. By writing this "Coding Interview Questions and Answers" book, I want to help 30+ million software developers to

prepare for any "Coding Interview". This "Coding Interview Questions and Answers" book would definitely increase the chance of cracking any coding interview significantly. Sample "Coding Interview Questions and Answers" pdf can be downloaded from www.crackingthecodinginterview.in. Please feel free to contact me at http://www.linkedin.com/in/chinmoym