**Important TCS Ninja Technical Interview Questions**

**1). What are OOPS concepts? Explain with a coding example.**

Ans. OOPS stands for object oriented programming and systems. It is a programming style that is associated with the concepts of class and objects and various other concepts like Inheritance, Polymorphism, Abstraction and Encapsulation etc.

Class: It is the design or blueprint of any entity, which defines the core properties and the functions. Eg. Vehicles

Object: An object is an instance of a class which has physical existence. Eg.Car is an instance of class vehicles.

Abstraction: It means hiding the details from the outside world and showing only the required things. Eg. Fan, we just switch on/off but we don’t know the internal workings.

Encapsulation: It describes the idea of bundling data and methods that work on that data within one unit, e.g., a class in Java. Encapsulation also leads to data hiding.

Polymorphism: It allows us to define more than one way to do something.

Eg. A person at the same time can have different characteristics. Like a man at the same time is a father, a husband, an employee. So the same person possesses different behaviour in different situations. This is called polymorphism.

**Coding Example:**

Class Account{ //class

int account\_number; //data

int account\_balance; //data

public void showdata(){ //action

system.out.println(“Account Number”+account\_number)

system.outprintln(“Account Balance”+ account\_balance)

}

}

//Object

Account myAccount = new Account();

**2). Write a program in c to reverse a string.**

Ans.

#include<stdio.h>

int main()

{

char str[100];

int count=0,end,start;

//read the string with whitespaces

printf("Enter the string:");

scanf ("%[^\n]%\*c", str);

//count the string length

while(str[count]!='\0')

{

count++;

}

//reverse the string

for (start = 0,end=count-1; start < count/2;start++,end--)

{

char temp = str[start];

str[start] = str[end];

str[end] = temp;

}

printf("Reverse of the string:%s", str);

return 0;

}

**3). What are the data structures? What are the data structures in python?**

Ans. **Data Structure** can be defined as the group of **data** elements which provides an efficient way of storing and organising **data** in the computer so that it can be used efficiently. Some **examples** of **Data Structures** are arrays, Linked List, Stack, Queue, etc.

There are four built-in **data structures in Python** - list, tuple, dictionary and set.

**4). What is binary search?**

Ans. Binary search is an efficient method for locating an element in a sorted array that is similar to searching for a word in the dictionary. If the word to search starts with the letter S, one usually starts searching the dictionary around the half-way mark. Since it is commonly known that S

S is located in the second half of the alphabet, it would not make sense to start searching for S from the dictionary’s start.

**5). What is a loop?**

Ans. A **loop** is a programming structure that repeats a sequence of instructions until a specific condition is met. Programmers use **loops** to cycle through values, add sums of numbers, repeat functions, and many other things.

**6). Tell us of the prime numbers code.**

Ans.

#include <stdio.h>

int main() {

int n, i, flag = 0;

printf("Enter a positive integer: ");

scanf("%d", &n);

for (i = 2; i <= n / 2; ++i) {

// condition for non-prime

if (n % i == 0) {

flag = 1;

break;

}

}

if (n == 1) {

printf("1 is neither prime nor composite.");

}

else {

if (flag == 0)

printf("%d is a prime number.", n);

else

printf("%d is not a prime number.", n);

}

return 0;

}

**7). What is the palindrome code?**

Ans. #include <stdio.h>

int main() {

int n, reversedN = 0, remainder, originalN;

printf("Enter an integer: ");

scanf("%d", &n);

originalN = n;

// reversed integer is stored in reversedN

while (n != 0) {

remainder = n % 10;

reversedN = reversedN \* 10 + remainder;

n /= 10;

}

// palindrome if orignalN and reversedN are equal

if (originalN == reversedN)

printf("%d is a palindrome.", originalN);

else

printf("%d is not a palindrome.", originalN);

return 0;

}

**8).What is python?**

Ans. Python is an interpreted, high-level and general-purpose programming language. Created by Guido van Rossum and first released in 1991.

**9).What are the python data types?**

Ans. **Built-in Data Types in Python**

* Binary **Types**: memoryview, bytearray, bytes.
* Boolean **Type**: bool.
* Set **Types**: frozenset, set.
* Mapping **Type**: dict.
* Sequence **Types**: range, tuple, list.
* Numeric **Types**: complex, float, int.
* Text **Type**: str.

**10).What are sequence data types?**

Ans.**Sequences** allow you to store multiple values in an organized and efficient fashion. There are several **sequence types**: strings, Unicode strings, lists, tuples, byte arrays, and range objects. Dictionaries and sets are containers for non-**sequential data**.

**11).What is the lambda function?**

Ans. A **lambda function** is a small anonymous **function**. A **lambda function** can take any number of arguments, but can only have one **expression**.

Eg. Add 10 to argument a, and return the result:

x = lambda a : a + 10

print(x(5))

**12).Tell us what you know about lists and tuples?**

Ans. [**Lists**](https://www.geeksforgeeks.org/python-list/) are just like the arrays, declared in other languages. Lists need not be homogeneous always which makes it a most powerful tool in Python. In Python, the list is a type of container in Data Structures, which is used to store multiple data at the same time. Lists are a useful tool for preserving a sequence of data and further iterating over it.

[Tuple](https://www.geeksforgeeks.org/tuples-in-python/) is also a sequence data type that can contain elements of different data types, but these are immutable in nature. In other words, a tuple is a collection of Python objects separated by commas. The tuple is faster than the list because of static in nature.

**mutable** objects can change their state or contents and **immutable** objects can't change their state or content.

**13). Tell me about machine learning.**

Ans. **Machine learning** is an application of artificial **intelligence** (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. **Machine learning** focuses on the development of computer programs that can access data and use it to learn for themselves.

**14). How to stop an infinite loop in python?**

Ans. Ctrl + C

**15).Which expression is used to represent ID in CSS?**

Ans. #mypara { text-align:left; color:black; }

This statement would only style the elements which have id value as “mypara”.

**16).Write a code to store and reuse a program in python?**

Ans. *# greet.py*

**def** **greetEntity** (x):

**print**("hello " **+** x)

greetEntity("Everybody")

greetEntity("Programming Historian")

**17).Tell me about union.**

Ans.A union is a special data type available in C that allows to store different data types in the same memory location. You can define a union with many members, but only one member can contain a value at any given time. Unions provide an efficient way of using the same memory location for multiple-purpose.

**18).What is the difference between the structure and the union?**

Ans. A **structure** is a user-defined data type available **in** C that allows combining data items **of different** kinds. **Structures** are used to represent a record. A **union** is a special data type available **in** C that allows storing **different** data types **in the** same memory location.

**19).Write a fibonacci program.**

Ans. #include<stdio.h>

1. **int** main()
2. {
3. **int** n1=0,n2=1,n3,i,number;
4. printf("Enter the number of elements:");
5. scanf("%d",&number);
6. printf("\n%d %d",n1,n2);//printing 0 and 1
7. **for**(i=2;i<number;++i)//loop starts from 2 because 0 and 1 are already printed
8. {
9. n3=n1+n2;
10. printf(" %d",n3);
11. n1=n2;
12. n2=n3;
13. }
14. **return** 0;
15. }

**20).What are the basic HTML tags?**

Ans.

* <**head**></**head**>
* <html></html>
* <**title**></**title**> ...
* <**body**></**body**> ...
* <h1></h1> ...
* <p></p> ...
* <a></a> ...
* <**img**></**img**>

**21).What is the difference between AI, ML and DL?**

Ans. **ML** refers to an **AI** system that can self-learn based on the algorithm. Systems that get smarter and smarter over time without human intervention **is ML**. Deep Learning (**DL**) **is machine learning** (**ML**) applied to large data sets. Most **AI** work involves **ML** because intelligent behaviour requires considerable knowledge.

22).Write a program for LCM?

Ans.

#include <stdio.h>

int main() {

int n1, n2, max;

printf("Enter two positive integers: ");

scanf("%d %d", &n1, &n2);

// maximum number between n1 and n2 is stored in min

max = (n1 > n2) ? n1 : n2;

while (1) {

if (max % n1 == 0 && max % n2 == 0) {

printf("The LCM of %d and %d is %d.", n1, n2, max);

break;

}

++max;

}

return 0;

}

**23).What is big data? In what current scenarios, it is used?**

Ans.**Big data** is a term that describes the **large** volume of **data** – both structured and unstructured.**Big Data** potential are healthcare, public sector, retail, manufacturing and personal location **data**. **Recent** example of **usage** of **Big Data analytics** is the discovery of the Higgs Boson particle or the 'God particle'.

**24). What other trending technology have you learnt?**

Ans.

Cloud computing: **Cloud computing** is the on-demand availability of **computer** system resources, especially data storage (**cloud** storage) and **computing** power, without direct active management by the user. The term is generally used to describe data centers available to many users over the Internet.

**(You can tell of what you have learnt😀)**

**25).What is lifo and fifo?**

Ans.

Stands for "Last In, First Out." **LIFO** is a method of processing **data** in which the last items entered are the first to be removed. This is the opposite of **LIFO** is **FIFO** (First In, First Out), in which items are removed in the order they have been entered.

**26).What is a round robin algorithm?**

Ans. Round Robin is a [CPU scheduling algorithm](http://quiz.geeksforgeeks.org/gate-notes-operating-system-process-scheduling/) where each process is assigned a fixed time slot in a cyclic way.

* It is simple, easy to implement, and starvation-free as all processes get a fair share of CPU.
* One of the most commonly used techniques in CPU scheduling as a core.
* It is preemptive as processes are assigned CPU only for a fixed slice of time at most.
* The disadvantage of it is more overhead of context switching.

**27). What is bubble sort and bucket sort?**

Ans.Bubble sort, sometimes referred to as sinking sort, is a simple sorting algorithm that repeatedly steps through the list, compares adjacent elements and swaps them if they are in the wrong order. The pass through the list is repeated until the list is sorted.

Bucket sort, or bin sort, is a sorting algorithm that works by distributing the elements of an array into a number of buckets. Each bucket is then sorted individually, either using a different sorting algorithm, or by recursively applying the bucket sorting algorithm.

**28).What is a dangling pointer?**

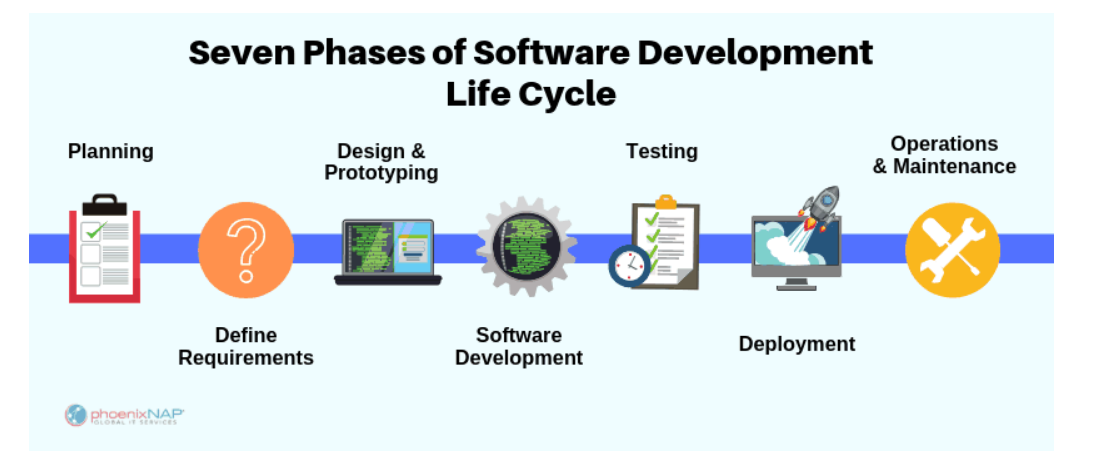
Ans. A pointer pointing to a memory location that has been deleted (or freed) is called a dangling pointer.

**29).What is method overloading and method overriding?**

Ans.**Method Overloading** is a feature that allows a class to have more than one **method** having the same name, if their argument lists are different. It is similar to constructor **overloading** in Java, that allows a class to have more than one constructor having different argument lists.

Method overriding, in object-oriented programming, is a language feature that allows a subclass or child class to provide a specific implementation of a method that is already provided by one of its superclasses or parent classes.

**30).What are the stages of the SDLC?**

Ans. 

**31).What is a waterfall model?Would you use the waterfall model for a college webpage?**

Ans. The **waterfall model** is a classical **model** used in system **development** life cycle to create a system with a linear and sequential **approach**. It is termed as **waterfall** because the **model** develops systematically from one phase to another in a downward fashion

Yes. We can use the waterfall model for our college web page if the requirements are clearly defined and fixed.Technology is understood and is not dynamic. There are no ambiguous **requirements**.

If the requirements are not clear and that can be dynamic then we have to go through some other SDLC model.

**32).What is an array?**

Ans. An array, is a data structure consisting of a collection of elements, each identified by at least one array index or key. An array is stored such that the position of each element can be computed from its index.

**33).What is data type?**

Ans.A data type or simply type is an attribute of data which tells the compiler or interpreter how the programmer intends to use the data. Most programming languages support basic data types of integer numbers, floating-point numbers, characters and Booleans.

**34).What is call by value and call by reference?**

Ans. In **Call by value**, a copy of the variable is passed whereas in **Call by reference**, a variable itself is passed. In **Call by value**, actual and formal arguments will be created in different memory locations whereas in **Call by reference**, actual and formal arguments will be created in the same memory location.

35).What is an interface in java?

Ans.Like a class, an interface can have methods and variables, but the methods declared in an interface are by default abstract (only method signature, no body).

* Interfaces specify what a class must do and not how. It is the blueprint of the class.

**36). What is a pointer and how to declare?**

Ans. A **pointer** is a variable that stores the address of another variable. Unlike other variables that hold values of a certain type, **pointer** holds the address of a variable. For **example**, an integer variable holds (or you can say stores) an integer value, however an integer **pointer** holds the address of an integer variable.

// General syntax

**datatype \*var\_name;**

// An example pointer "ptr" that holds

// address of an integer variable or holds

// address of a memory whose value(s) can

// be accessed as integer values through "ptr"

**int \*ptr;**

**37).What are global and local variables?**

Ans.**Local variable** is declared inside a function whereas **Global variable** is declared outside the function. **Local variables** are created when the function has started execution and is lost when the function terminates, on the other hand, **Global variable** is created as execution starts and is lost when the program ends.

38).How to declare an integer?

Ans. int varialbe\_name = value;

**39).What is the difference between the jvm and jre?**

Ans. **JDK** – **Java Development Kit** (in short JDK) is Kit which provides the environment to **develop and execute(run)** the Java program. JDK is a kit(or package) which includes two things

* + 1. Development Tools(to provide an environment to develop your java programs)
    2. JRE (to execute your java program).
* **Note :** JDK is only used by Java Developers.
* **JRE** – **Java Runtime Environment** (to say JRE) is an installation package which provides an environment to **only run(not develop)** the java program(or application)onto your machine. JRE is only used by those who only want to run the Java Programs i.e. end users of your system.
* **JVM** – **Java Virtual machine**(JVM) is a very important part of both JDK and JRE because it is contained or inbuilt in both. Whatever Java program you run using JRE or JDK goes into JVM and JVM is responsible for **executing the java program line by line** hence it is also known as interpreter.

**40).What are the properties of RDBMS?**

Ans.Relational tables have six properties:

1. **Values are atomic.**

2. **Column values are of the same kind.**

3. **Each row is unique.**

4. **The sequence of columns is insignificant.**

5. **The sequence of rows is insignificant.**

6. **Each column must have a unique name.**

**41).What is the difference between delete and truncate?**

Ans. **Delete is** a DML command whereas **truncate is** DDL command. **Truncate** can be used to **delete** the entire data of the table without maintaining the integrity of the table. On the other hand , **delete** statements can be used for **deleting** the specific data.

42).How to create table syntax?

Ans. CREATE TABLE *table\_name* (

*column1 datatype*,

*column2 datatype*,

*column3 datatype*,

....

);