PLACEMENTS PREPARATION MATERIAL

SELF INTRODUCTION:

Good morning, sir/madam. First of all, thank you for giving this opportunity to introduce myself. My name is Bathula Raghunath Reddy. I am from Guntur in AP. I am pursuing my bachelor's degree in Kalasalingam Academy of Research and Education in the stream of CSE department by holding 7.43 CGPA. Now coming to my schooling, I have done my 12th class in Sri Chaitanya Junior college in Vijayawada, AP from state board with 85.9% and 10th class in Dr. KKR Gowtham High school in Guntur, AP from state board with 8.3GPA.

Now coming to my family background, we are 4 members. My Father and Mother are farmers, and my elder brother was doing job in Byju's company in the role of content writer work for 6 months.

Apart from my education, I am always interested to know new things I am a fresher and I have no experience I have to improve my skills and knowledge. I will assure that I will show my skills and knowledge in my work with 100%.

My strengths are I am self-motivated person, hardworking and disciplined person. I have actively participated in workshops and webinars which are conducted by educational institutions and organisations which help me to understand things in depth. My soul in life is to get placed in reputed company like yours and learn new set of skills to gain professional experience.

(OR)

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My strengths are I am self- motivated, positive thinking, confident person and able to learn in a quick manner. My hobbies are Playing and watching cricket, listening to music and browsing the internet. . My soul in life is to get placed in reputed company like yours and learn new set of skills to gain professional experience.

ABOUT PROJECT:

(EMAIL READING WITH VOICE BASED TO BLIND PEOPLE)

1) The objective of this project is to identify handwritten characters and digits with the use of neural networks. We have to construct suitable neural networks and train them properly.

2)To develop a voice primarily based email system that will facilitate visually impaired individuals to access email in a problem free manner.

3)This application provides a voice primarily based mailing service which provides them to browse and send mail on their own without any guidance.

Role of this project:

1)Testing the input data.

2)Weather feeder data is correct or not.

Technologies used:

Front End: HTML, CSS.

Backend: Machine learning.

Technology used: Machine learning.

Machine learning: 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.

HTML: The Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser.

CSS: CSS full form is “Cascading Style Sheets”. CSS is a computer language for laying out and structuring web pages.

Software Used:

1)Linux Ubuntu

2)Python

3)Open CV

Linux Ubuntu: Ubuntu is a Linux distribution based on Debian and composed mostly of free and open-source software.

Python: Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs.

Open CV: Open CV is a library of programming functions mainly aimed at real-time computer vision.

1) How speech is converted into Voice? / How do blind people read a text or message?/ Can blind people read Emails?

Ans: A braille display is a flat keyboard like device that translates text into braille and enables blind individuals to read text using their fingers.

2) How do you send an EMAIL to a blind person?

Ans: Speaking Email is fully accessible with voice over, the screen reader that blind people use to interact with their i-phone.

3) How do you communicate with someone who is blind?

Ans: Blind people use many different ways to communicate. They use sign language (Adapted to fit their visual field), tracking, print on palm, Braille, speech and speech reading.

4) What helps blind people read?

Ans: Braille is a system that uses combinations of raised dots to spell letters and numbers. It is used by people who are partially sighted to help them read and write. Braille is not actually a language- it's a system writing.

5) How fast can a blind person read braille?

Ans: People who are fluent in Braille can typically read at a rate of 125 to 200 words per minute.

6) Can Blind (Visual impaired) people write EMAIL?

Ans: Braille is a system that uses combinations of raised dots to spell letters and numbers. Its used by people who are blind to help them read and write.

7) How do you write a letter to Braille?

Ans: All braille is written as a combination of 6 dots per cell. The dots are arranged in 2 vertical rows. A single letter may be as few as 1 dot or many as 5 dots.

- For example, the first 10 letters of the alphabet use the top 4 dots, while the next 10 letters add the bottom left -hand dot to the previous 10 letters.

8) What is braille keyboard?

Ans: It is a speciality keyboards that contain single keys that represent each of the dots in a braille cell. To type a letter in braille the user would press a combination of the keys needed to create that braille character.

Advantages: 1) It is Effective.

2) It is low cost.

3) Automatic character recognition.

Disadvantages: 1) Screen readers cannot spell technical and biological terms.

2)The systems are web and desktop applications they cannot be used by blind people without some help.

OOPS CONCEPTS:

****Main features of OOPS****:

1)Abstraction

2)Encapsulation.

3)Polymorphism.

4)Inheritance

1)Object: It is a real -world entity which is having the property and tasks performed.

Ex: A dog is an object because it has state like colour, name etc.

2) Class: Collection of objects is called Class. It is a blueprint that object follows.

3) Abstraction: Display only essential information and hiding the details.

Ex: When we are driving a car, we are only concerned about driving the car like start/stop the car, accelerate/break etc.

*There are 2 types of abstraction:

1)Data Abstraction: The act of representing essential features without including the background details. Ex: Switch board.

2)Process Abstraction.

4) Encapsulation: Binding variables and methods under single entity.

Ex: 1) Capsule which is mixed of several medicines.

2)School bag: School bag can keep our books, pens etc.

5) Inheritance: Acquiring the properties of one class to another class.

*The class whose properties and methods are inherited known as Parent class and the class that inherits the properties from parent class is called child class.

*There are 5 types of inheritance:

1)Single Inheritance: A class inherits only 1 parent class.

2)Multiple Inheritance: A class inherits more than 1 parent class.

3)Multi level Inheritance: Class 1 is inherited class 2 and this class 2 also get inherited by class 3 and this process goes on.

4)Hybrid Inheritance: When there is a combination of more than one form of Inheritance.

5)Hierarchical Inheritance: When more than one class is inherited from a single parent class.

6) Polymorphism: Poly means “Many” and Morphism means “Types”.

Performing the same task(method)in different ways.

* Types of polymorphism: 2 types

1)Static Binding (or) Compile time:

The function is invoked at compile time and it executes faster than runtime polymorphism at the compile time.

Ex: Method overloading.

2)Dynamic binding (or) Run time:

The function is invoked at run time and it executes slower than compile time polymorphism at the run time.

Ex: Method overriding.

1)Method overloading: If a class has multiple methods having same name but different in parameters

* **Advantage**: Increase the readability of the program.

2)Method Overriding: If subclass (Child class) has the same method as declared in the parent class.

* **Usage**: Provide the specific implementation of a method which is already provided by its superclass.

***Rules**: 1) The method must have same name as in parent class.

2)The method must have the same parameter as in parent class.

Difference between Abstraction and Encapsulation:

Abstraction is the method of hiding the unwanted information. Whereas encapsulation is a method to hide the data in a single entity or unit along with a method to protect information from outside.

Example: Outer Look of i-phone, like it has a display screen. Encapsulation is inner layout in terms of implementation.

TECHNICAL INTERVIEW QUESTIONS:

COMMONLY ASKING QUESTIONS:

1)Pointer: It is a variable which stores the address of another variable.

2) Constructor: The name of the constructor is the same as the name of the object but it has no return type.

3) Destructor: It is a special member function that is executed automatically when an object is destroyed that has been created by the constructor.

4) Recursion: Recursion is the process which comes into existence when a function calls a copy of itself to work on a smaller problem. Any function which calls itself is called recursive function.

5) Array: It is a collection of similar type of data items stored at contiguous memory locations.

6) Function: It is a block of code that performs a specific task.

7) For loop: It is a control structure which allows us to write a loop that is executed a specific number of times.

While loop: Used to repeat a specific block of code an unknown number of times, until a condition is met.

8)Static memory allocation: which allocates a fixed amount of memory during compile time

9) Dynamic memory allocation: Memory is allocated at runtime and memory can be increased while executing the program.

10)Data structures: It is a collection of data values, the relationships among them, and the functions or operations that can be applied to the data.

11) DBMS: software designed to store, retrieve, define, and manage data in a database.

12)Differences between C and C++

1) C is a subset of C++ and C++ is a superset of C.

2)C contains 32 keywords and C++ contains 63 keywords.

3)For the development of code, C supports procedural programming and C++ supports procedural & Object-oriented programming.

4)C does no support polymorphism, encapsulation, and inheritance which means that C does not support Object oriented programming and C++ supports polymorphism, encapsulation, and inheritance because it is an Object-oriented programming language.

13) Difference between C and python

Python is a high-level language as the translation of Python code takes place into machine language, using an interpreter. C is a compiled programming language. C is a faster language compared to Python as it is compiled. Python programs are usually slower than C programs as they are interpreted.

14) Difference between C and Java

C is a procedural, middle-level, compiled, and general-purpose programming language. Java is a high-level, object-oriented, interpreted, and general-purpose programming language

15) Difference between Java and python

Java is a statically typed and compiled language, and Python is a dynamically typed and interpreted language.

16) Stack: A stack is a linear data structure that follows the LIFO (Last in First Out) principle. It contains only one pointer top pointer pointing to the topmost element of the stack.

Ex: “Stack of plates”: we can only take a plate from the top of the stack, and you can only add a plate to the top of the stack.

USES OF STACK: 1) It can use for expression evaluation.

2) It can use for Memory management.

17) Queue: A queue is a linear data structure to store and manipulate the data elements. It follows the order of First in First Out (FIFO).

* There are 4 types of queues:

1)Simple queue: It is the most basic queue. The enqueue operation takes place at the rear, while dequeue operation takes place at the front.

2)Circular queue (Ring Buffer): A circular queue is similar to linear queue as it is based on the FIFO principle except that the last position is connected to the first position in a circular queue that forms a circle.

3)Priority queue: A priority queue is a special type of queue in which each element is associated with a priority and is served according to its priority.

4)Double ended queue: Double ended queue is a generalised version of queue data structure that allows insert and delete at both ends.

18) RDBMS (Relational Database Management System): The software used to store, manage, query and retrieve data stored in a relational database is called RDBMS.

19) Tables: Tables are database objects that can contain all the data in a database. It consists of columns and rows.

20) Attributes: Entities are represented by means of their properties called attributes.

Ex: A student entity may have name, class and age as attributes.

21) Difference between DBMS and RDBMS:

1)DBMS stores data as a file whereas in RDBMS data is stored in the form of tables.

2)DBMS supports single users, while RDBMS supports multiple users.

3)DBMS does not support client server architecture but RDBMS supports client server architecture.

22) Advantages of DBMS:

1)Redundancy control.

2)Provides multiple user interfaces.

3)Provides backup and Recovery.

4) Easy accessibility.

23)Database system: The collection of database and DBMS software together is called Database.

24) Entity: An entity is a set of attributes in database. An entity can be a real-world object which physically exists in this world.

25) What are the operations that can be performed on a stack?

Ans: Push operations, Pop operations and Peek operations.

26) What is the difference between PUSH and POP operations?

PUSH: PUSH specifies that data is being inserted into the stack.

POP: POP specifies data retrieval. It means that data is being deleted from the stack.

27) Postfix Expression: An expression in which operators follow the operands is called postfix expression.

* The expression “a+b” will be represented as “ab+” in postfix notation.

28) Prefix Expression: It requires that all operators precede the two operands that they work on.

* The expression “+A*BC “will be represented as “ABC*+” in prefix expression.

29) Linear search (or) sequential search: It is a method of finding an element within a list.

30) Binary search: It is used to find the position of an element in a sorted array.

31) Bubble sort: It is an algorithm that compares two adjacent elements and swaps them until they are not in the ascending order. Worst complexity: $0(n^2)$ Average complexity: $0(n^2)$

32) Insertion sort: It is a sorting algorithm in which the elements are transferred one at a time to the right position. Worst complexity: n^2 Average complexity: n^2

33) Selection sort: It is a sorting algorithm that selects the smallest element from an unsorted list in each iteration and places that element at the beginning of the unsorted list.

Worst Complexity, Best Complexity, Average Complexity: $0(n^2)$

34) RAM (Random Access Memory): RAM is a form of computer memory that can read and changed in any order, typically used to store working data and machine code.

35)ROM (Read Only Memory): ROM is a type of non -volatile memory used in computers and other electronic device.

36) 1NF (Normal Form): It states that an attribute of a table cannot hold multiple values. It must hold only single valued attribute.

37) 2NF: It is based on the concept of full functionality dependency. It applies to relations with composite keys (i.e relations with primary key composed of 2 or more attributes)

38) 3NF: It is a database schema design approach for relational databases which uses normalizing principles to reduce the duplication of data.

39) Operating System: It is a software programme required to manage and operate a computing device like smartphones, computers, web servers, network towers, smartwatches etc.

40) Name a few object -oriented programming languages.

Ans: C++, JAVA, PYTHON, PHP, JAVASCRIPT.

41) Structured programming: It is a programming paradigm that involves a totally structured control flow.

42) Checkpoint: It is a technique that removes all previous logs from the system and stores them permanently on the storage drive.

C LANG INTERVIEW QUESTIONS:

1) FEATURES OF C LANG:

- **Extensibility** - Capable of adopting new features.
- **Fast** - Support for system programming allows faster compilation and execution compared to popular high-level languages like Java and Python.
- **Memory Management** - Comes with built-in memory management for saving memory and optimizing memory use.
- **Middle-Level Programming Language** - Binds the gap between a machine-level language and a high-level language. It can be used for system programming as well as application programming.
- **Platform independence/Portability** - A C program written for one machine can run on other machines with little to no modifications.
- **Simplicity** - Follows the structured approach. Facilitates breaking down a big, complex program into smaller, independent, and easy-to-manage modules (sub-programs).

2) What do you know about C lang (or) What is C language?

Ans: The C language is one of the most used computer programming languages. The language is used by giving step by step instructions, which makes it a procedural language.

3) Who invented the C language and when?

Ans: Dennis M. Ritchie in 1971.

4) What is header file and what will happen if we include a header file twice in a C program?

Ans: Header files store the definitions and set of rules governing different built-in functions of the C programming language. For instance, the printf () and scanf () functions are defined in the stdio.h header file.

For example, you can't use printf () and scanf () functions without including the stdio.h header file.

- When a header file is included twice in a C program, the second one gets ignored.

5) **Why is C language known as "The mother of programming languages"?**

Ans: The C language is commonly called the "The mother of programming languages" as it is the language that forms the bases of programming.

6)What are the advantages of C lang?

Ans: **Middle – Level Language:** As the C language is in the midway of a high-level language and low-level language, it brings together the features of both. So, this distinctive feature of the language makes it possible to be used for low as well as high-level programming.

Structured Level Language: C language is a structured programming language that allows a complex program to be divided into simpler programs called the functions. Thus, making it quite a user friendly.

Case Sensitive Language: It is a case sensitive language due to which the lower and the upper-case letters are treated differently.

Portable Language: C language is a highly flexible language that enables it to be used for scripting system applications, which makes it a part of many well-known operating systems.

Powerful and Efficient Language: It is a user-friendly language and can effectively operate on games, graphics, enterprise applications, applications that need some calculations, etc.

7)Limitations of C language?

Ans: 1) Concept of OOPs: C language prohibits the concept of OOPs as it is based on the procedural approach. (Inheritance, Polymorphism, Encapsulation, Abstraction, Data Hiding).

2)Run Time Checking: C language does not do the running checking which means that errors are not detected after every line of coding, but only once the complete coding is done making it inconvenient to correct the bugs.

3)Concept of the Namespace: C language does not exhibit the property of Namespace, so there cannot be two variables with the same name in the C language program.

4)Lack of Exception Handling: The language doesn't exhibit the important feature of exception handling. The feature of exception handling doesn't allow the user to detect the errors and bugs while compiling the code.

5) Insufficient Level for Abstraction: C language doesn't have a very wide data handling capacity, which poses a threat to the security of the language.

8) What is the objective of main () function in C lang?

Ans: The main () function in C language to the inlet to the C program. It is the entry point where the process of execution of the program starts. When the execution of the C program initiates, the control of the program is directed towards the main () function.

9) Basic datatypes in C lang:

Ans: **int** - Stores an integer number.

float - Stores a decimal number.

double - Stores a decimal number with the highest precision.

char - Stores a single character.

void - Stores no value.

10) What are reserved keywords? How many reserved keywords are there?

Ans: Words that are restricted for general use while writing a program, i.e., for using as a name for a variable, function, structure, etc. are called reserved keywords

*There are 32 reserved keywords are there namely break, case, char, cons, default, do etc.

11) Nested loop: When the one loop gets into the other loop and starts running that loop is called nested loop. The outer loop will specify the number of times the inner loop will perform its function and every time the first loop performs its tasks.

12) Syntax error: The mistakes that occur in the programming language is called syntax error.

13) One Dimensional array: One-dimensional array is an array that stores the elements one after the another

Syntax: data_type array_name[size];

* Multi-Dimensional array: Multidimensional array is an array that contains more than one array.

Syntax: data_type array_name[size];

14) Pointer on a pointer: It's a pointer variable which can hold the address of another pointer variable. It de-refers twice to point to the data held by the designated pointer variable.

```
Ex: int x = 5, *p=&x, **q=&p;
```

Therefore 'x' can be accessed by **q.

15) Distinguish between malloc () and calloc ()

Ans: Both allocates memory from heap area/dynamic memory. By default, calloc fills the allocated memory with 0's.

16) Static variable: A static local variables retains its value between the function call and the default value is 0.

17) Null Pointer: A pointer pointing to nothing is called Null pointer.

Eg: char *p=NULL.

18) Dangling pointer: A pointer initially holding valid address, but later the held address is released or freed. Then such a pointer is called as dangling pointer.

19) Can a program be compiled without main () function?

Ans: Yes, it can be but cannot be executed, as the execution requires main () function definition.

20) Static Function: A function's definition prefixed with static keyword is called as a static function.

21) Infinite loop: A loop executing repeatedly as the loop-expression always evaluates to true such as

```
while (0 == 0) {
}
```

22) Why C lang is mid- level language?

Ans: Because it binds the low level and high -level programming language.

23) Uses of Function: C functions are used to avoid the rewriting the same code again and again in our program

24)What is the difference between call by value and call by reference?

Ans: **Call by value:** When a copy of the value is passed to the function, then the original value is not modified.

Call by Reference: When a copy of the value is passed to the function, then the original value is modified.

25) Recursion: When a function calls itself, and this process is known as recursion. The function that calls itself is known as a recursive function.

* Recursive function comes in 2 phases:

1) **Winding phase**: When the recursive function calls itself, and this phase ends when the condition is reached.

2) Unwinding phase: Unwinding phase starts when the condition is reached, and the control returns to the original call.

26) Uses of Pointers:

Ans: 1) **Accessing array elements**: Pointers are used in traversing through an array of integers and strings.

2) **Dynamic memory allocation**: Pointers are used in allocation and deallocation of memory during the execution of a program.

3) **Call by Reference**: The pointers are used to pass a reference of a variable to other function.

27) Static Memory Allocation: In case of static memory allocation, memory is allocated at compile time, and memory can't be increased while executing the program. It is used in the array. Ex: **int** a [10];

* The above example creates an array of integer type, and the size of an array is fixed, i.e., 10.

28) Dynamic Memory Allocation: In case of dynamic memory allocation, memory is allocated at runtime and memory can be increased while executing the program. It is used in the linked list. Ex: **int** *p= malloc (**size of**(**int**)*10);

The above example allocates the memory at runtime.

29) What are Tokens: The Token is an identifier. It can be constant, keyword, string literal, etc.

* C has following tokens:

Identifiers: Identifiers refer to the name of the variables.

Keywords: Keywords are the predefined words that are explained by the compiler.

Constants: Constants are the fixed values that cannot be changed during the execution of a program.

Operators: An operator is a symbol that performs the particular operation.

Special characters: All the characters except alphabets and digits are treated as special characters.

30) What is the use of print () and scan () functions?

Ans: **print ():** The print () function is used to print the integer, character, float, and string values on to the screen.

- Following are the format specifier:

  - **%d**: It is a format specifier used to print an integer value.
  - **%s**: It is a format specifier used to print a string.
  - **%c**: It is a format specifier used to display a character value.
  - **%f**: It is a format specifier used to display a floating-point value.

Scanf (): The scanf () function is used to take input from the user

C++ INTERVIEW QUESTIONS:

1) What are different data types present in C++?

Ans: 1) Primitive Datatype (basic datatype). Example- char, short, int, float, long, double, bool, etc.

2) Derived datatype. Example- array, pointer, etc.

3) Enumeration. Example- Enum

4) User-defined data types. Example- structure, class, etc

2) Differentiate between Structure and class?

A**ns:**

STRUCTURE	CLASS
Members of the structure are public by default.	Members of the class are private by default.
When deriving a struct from a class/struct, default access specifiers for base class/struct are public.	When deriving a class, default access specifiers are private.

3) Operator Overloading: Operator Overloading is a very essential element to perform the operations on user-defined data types. By operator overloading we can modify the default meaning to the operators like +, -, *, /, <=, etc.

4) Virtual Function: It is a member function in the base class that you redefine in a derived class. A virtual function is declared using the virtual keyword.

5) Friend class: A friend class can access private, protected, and public members of other classes in which it is declared as friends.

6) Friend Function: A friend function can also access private, protected, and public members. But friend functions are not member functions.

Characteristics:

1) The friend function is not in the scope of the class in which it has been declared.

2) Friend function uses objects as arguments.

7) What are the access specifiers in C++?

Ans: **1) Public:** All data members and member functions are accessible outside the class.

2)Protected: All data members and member functions are accessible inside the class and to the derived class.

3)Private: All data members and member functions are not accessible outside the class.

8) Inline function: If a function is inline, the compiler places a copy of the code of that function at each point where the function is called at compile time.

9) Reference in C++: A reference is like a pointer. It is another name of an already existing variable. Once a reference name is initialized with a variable, that variable can be accessed by the variable name or reference name both.

10) Copy Constructor: A copy constructor is a member function that initializes an object using another object of the same class.

11) Virtual Function: A virtual function is a member function in the base class that you redefine in a derived class. It is declared using the virtual keyword.

Ex:
```
class base{
public:
 virtual void fun(){

 }
};
```

Rules: 1The virtual functions should be a member of some class.

2) The virtual function cannot be a static member.

12) Pure Virtual Functions: A pure virtual function is a function that has no implementation and is declared by assigning 0. It has no body.

Ex:
```
class base{
public:
 virtual void fun()=0;
};
```

Here, = sign has got nothing to do with the assignment, and value 0 is not assigned to anything. It is used to simply tell the compiler that a function will be pure.

13) Void Pointers: A void pointer is a pointer which is having no datatype associated with it. It can hold addresses of any type.

For Example:

```
void *ptr;

char *str;
p=str;     // no error
str=p;     // error because of type mismatch
```

14) Difference between Array and List.

Ans: 1) An Array is a collection of homogeneous elements while a list is a collection of heterogeneous elements.

2) Array memory allocation is static and continuous while List memory allocation is dynamic and random.

15) **Pre-increment pointer**: The pre-increment operator increments the operand by 1, and the value of the expression becomes the resulting value of the incremented. Suppose ptr is a pointer then pre-increment pointer is represented as ++ptr.

Example:

```
#include <iostream>
 using namespace std;
int main()
{
int a[5]={1,2,3,4,5};
int *ptr;
ptr=&a[0];
cout<<"Value of *ptr is : "<<*ptr<<"\n";
cout<<"Value of *++ptr : "<<*++ptr;
return 0;
}
```

16) Post-increment pointer: The post-increment operator increments the operand by 1, but the value of the expression will be the value of the operand prior to the incremented value of the operand. Suppose ptr is a pointer then post-increment pointer is represented as ptr++

Example:

```
#include <iostream>
using namespace std;
 int main()
{
int a[5]={1,2,3,4,5};
int *ptr;
ptr=&a[0];
```

```
cout<<"Value of *ptr is : "<<*ptr<<"\n";
cout<<"Value of *ptr++ : "<<*ptr++;
return 0;
}
```

17) **Incrementing or decrementing a pointer**: Incrementing a pointer means that we can increment the pointer by the size of a data type to which it points.

18) Founder/ Developer/Creator of C++: Bjarne Stroustrup in 1985.

19) Token in C++: A token in C++ can be a keyword, identifier, literal, constant and symbol.

20) Name space: The namespace defines the scope where the identifiers such as variables, class, functions are declared.

Syntax:

```
namespace namespace_name
{
 //body of namespace;
}
```

21) Advantages of C++:

Ans: 1) C++ is a highly portable language means that the software developed using C++ language can run on any platform.

2) C++ is an object-oriented programming language which includes the concepts such as classes, objects, inheritance, polymorphism, abstraction.

22) What is C++ (or) what you know about C++?

Ans: 1) C++ is an object-oriented programming language created by Bjarne Stroustrup. It was released in 1985.

2) C++ is a superset of C with the major addition of classes in C language.

23) Inline functions: It is for which the compiler copies the code from the function definition directly into the code of the calling function rather than creating a separate set of instructions in memory.

JAVA INTERVIEW QUESTIONS:

1) Why JAVA is platform independent language?

Ans: Java language was developed in such a way that it does not depend on any hardware or software because the compiler compiles the code and then converts it to platform-independent byte code which can be run on multiple systems.

2) **Why is Java not a pure object-oriented language?**

Ans: Java supports primitive data types - byte, Boolean, char, short, int, float, long, and double and hence it is not a pure object-oriented language.

3) Final variable: When a variable is declared as final in Java, the value can't be modified once it has been assigned.

4) Final method: A method declared as final cannot be overridden by its children's classes

5) Final Class: No classes can be inherited from the class declared as final. But that final class can extend other classes for its usage.

6) When can we use Superclass?

Ans: The super keyword is used to access hidden fields and overridden methods or attributes of the parent class.

7) Main objective of Garbage collection?

Ans: The main objective of this process is to free up the memory space occupied by the unnecessary and unreachable objects during the Java program execution by deleting those unreachable objects.

8) JDK (Java Development Kit): JDK is a complete software development kit for developing Java applications. It comprises JRE, Javadoc, compiler, debuggers, etc.

* JDK is mainly used for code development and execution.

9) JRE (Java Runtime Environment): JRE is a software package providing Java class libraries, JVM and all the required components to run the Java applications.

* JRE is mainly used for environment creation to execute the code.

10) JVM (Java Virtual Machine): JVM is a platform-dependent, abstract machine comprising of 3 specifications - document describing the JVM implementation requirements, computer program meeting the JVM requirements and instance object for executing the Java byte code and provide the runtime environment for execution.

* JVM provides specifications for all the implementations to JRE.

11) Thread Local: Thread Local in Java is used for creating thread-local variables. We know that all threads of an object share its variables.

12) **Which is more preferred –Synchronized method or Synchronized block?**

Ans: The synchronized block is more preferred because it doesn't lock the object, synchronized methods lock the object and if there are multiple synchronization blocks in the class, even though they are not related, it will stop the execution and put them in a wait state to get the lock on the object.

13) Thread Priority: Every thread when gets born is assigned with a priority value and usually higher priority gets precedence in execution but it also depends on the Thread Scheduler implementation which is OS dependent.

14) Instance of Keyword: To check whether an object belongs to a class or not.

15) System Class in JAVA: System class is one of the core classes. One of the easiest ways to log information for debugging is System.out.print() method. System class is final so we can't subclass and override its behaviour through inheritance.

16) Aggregation in JAVA: Aggregation is best defined as the entity reference where it represents the relationship between two classes where the aggregate class contains a reference to the class which it owns.

17) What is break and continue statement?

Ans: In a while or do-while loop, we use break for a statement to terminate the loop. We use a break statement in a switch statement to exit the switch case. We can also use break statement for terminating the nested loop.

*The continue statement is used for skipping the current iteration of a for, while or do-while loop.

18) Type Casting: When we assign a value of one data type to a different data type then these two data types might not be compatible with each other and needs conversion.

19) Developer/Founder of JAVA: James Gosling.

20) Finalize method: It is a method of Object class is a method that the garbage collector always calls just before the destroying the object which is eligible for garbage collection to perform clean-up activity.

21) Garbage Collection: It is the process by which java programs perform automatic memory management.

22) Class loader: The class loader loads the java programme first whenever we execute it.

23) In java, what is the default value of the local variable?

Ans: Local variables, primitives, and object references are not initialised to any default value in Java.

24) Advantages of Java packages:

Ans: 1) Name collisions are avoided by using packages.

2) It is a lot easier to find the classes that are linked.

3) The packages make it easier to manage access.

COMPUTER NETWORKS INTERVIEW QUESTIONS:

1) Network: A network is a collection of devices connected to each other to allow the sharing of data. Ex: Internet.

2) Network Topology: Network topology specifies the layout of a computer network. It shows how devices and cables are connected to each other.

3) Network Reliability: Network reliability means the ability of the network to carry out the desired operation through a network such as communication through a network.

4) Types of Networks:

- **PAN (Personal Area Network)**: Its range limit is up to 10 meters. It is created for personal use. Generally, personal devices are connected to this network. For example computers, telephones, fax, printers, etc.
- **LAN (Local Area Network)**: It is used for a small geographical location like office, hospital, school, etc.
- **HAN (House Area Network)**: It is actually a LAN that is used within a house and used to connect homely devices like personal computers, phones, printers, etc.
- **CAN (Campus Area Network)**: It is a connection of devices within a campus area which links to other departments of the organization within the same campus.
- **MAN (Metropolitan Area Network)**: It is used to connect the devices which span to large cities like metropolitan cities over a wide geographical area.
- **WAN (Wide Area Network)**: It is used over a wide geographical location that may range to connect cities and countries.
- **GAN (Global Area Network)**: It uses satellites to connect devices over global are.

5) MAC Address: MAC stands for Media Access Control. It is the address of the device at the Media Access Control Layer of Network Architecture.

6) IP Address: IP address is a unique 32bit software address of a computer in a network system.

7) Protocol: A protocol is a set of rules which is used to govern all the aspects of information communication.

8) Private IP address: There are three ranges of IP addresses that have been reserved for IP addresses. They are not valid for use on the internet. If we want to access internet on these private IPs, we must have to use proxy server.

9) Public IP address: A public IP address is an address taken by the Internet Service Provider which facilitates you to communication on the internet.

10) OSI Reference Model: 7 models are there.

1)PHYSICAL LAYER: Physical layer transmits the data either in the form of electrical/optical or mechanical form. The physical layer is mainly used for the physical connection between the devices.

2) DATALINK LAYER: It is used for transferring the data from one node to another node. It receives the data from the network layer and converts the data into data frames and then attach the physical address to these frames which are sent to the physical layer.

3)NETWORK LAYER: Network layer converts the logical address into the physical address. It provides the routing concept means it determines the best route for the packet to travel from source to the destination.

4)TRANSPORT LAYER: It delivers the message through the network and provides error checking so that no error occurs during the transfer of data.

5)SESSION LAYER: The main responsibility of the session layer is beginning, maintaining, and ending the communication between the devices.

6)PRESENTATION LAYER: The presentation layer is also known as a Translation layer as it translates the data from one format to another format.

7)APPLICATION LAYER: Application layer enables the user to access the network. It is the topmost layer of the OSI reference model.

11) TCP/IP: TCP/IP is short for Transmission Control Protocol /Internet protocol. It is a set of protocol layers that is designed for exchanging data on different types of networks.

12) **How many layers are in TCP/IP?**
Ans: There are basic 4 layers in TCP/IP:

1. Application Layer
2. Transport Layer
3. Internet Layer
4. Network Layer

13) Router: A router is a networking device that forwards data packets between computer networks.

14) Functions of Router:

1) A router connects multiple IP networks.
2) It determines the best path to send packets.

15) Working of Router: The process of determining the path for data to follow in order to navigate from one server to another.

16) Switch: Switches allow devices to share and transfer data, enabling communication between devices on the network.

17) Difference between TCP/IP and OSI model?

Ans: 1) TCP/IP has 4 layers and OSI model has 7 layers.

2) TCP/IP is more reliable than the OSI model while OSI model is less reliable as compared to the TCP/IP model.

3) TCP/IP model uses horizontal approach while OSI model uses vertical approach.

18) Uses of IP Address: It is used to connect the internet and identify devices so that computers like desktops, mobile devices and servers can communicate each other.

19) Functions of IP Address: It is to handle the connection between devices that send and receive information across a network.

20) Ipv4 Address: It is a 32bit number that uniquely identifies a network interface on a machine.

21) IPv6 Address: It is a 128bits in length and consists of eight 16bit fields, with each field bounded by a colon. Each field must contain Hexadecimal number

PYTHON INTERVIEW QUESTIONS:

1) What is Python (or) what do you know about Python?

Ans: It is a general-purpose computer programming language. It is a high-level, object-oriented language which can run equally on different platforms such as Windows, Linux, UNIX.

2) Who proposed/Founder/Developer of Python?

Ans: Python was created by **Guido van Rossum** and released in **1991**.

3) Where Python mostly used?

Ans: Web development (server-side), Software development, Mathematics and System scripting.

4) Why Python?

Ans: 1) Python allows to implement the Object-Oriented concepts to build application solution Python is an interpreted, object-oriented, high-level programming language with dynamic semantics.

2)Python is compatible with different platforms like **Windows, Mac, Linux, Raspberry Pi,** etc.

3)Python has a simple syntax as compared to other languages.

4)Python allows a developer to write programs with fewer lines than some other programming languages.

5) Applications of Python:

- Web and Internet Development
- Games
- Scientific and computational applications
- Language development

6) Advantages of Python:

Ans: 1) Python is interpreted language.

Interpreted: It does not require prior compilation of code and executes instructions directly.

2) It is Free and open source

Free and open source: It is an open-source project which is publicly available to reuse. It can be downloaded free of cost.

3)It is Extensible.

Extensible: It is very flexible and extensible with any module.

4) Object-oriented

Object-oriented: Python allows to implement the Object-Oriented concepts to build application solution.

7) Python Functions: A function is a section of the program or a block of code that is written once and can be executed whenever required in the program.

* There are three types of functions:

- **Built-In Functions:** copy (), len (), count () are the some built-in functions.
- **User-defined Functions:** Functions which are defined by a user known as user-defined functions.
- **Anonymous functions:** These functions are also known as lambda functions because they are not declared with the standard def keyword.

8) Why do we Join () function in Python?

Ans: The join () is defined as a string method which returns a string value.

9) What is the use of break statement?

Ans: The break statement is used to terminate the execution of the current loop.

10) Tuple in Python: A tuple is a built-in data collection type. It allows us to store values in a sequence. It is immutable, so no change is reflected in the original data. It uses () brackets rather than [] square brackets to create a tuple.

11) Different types of Operators in Python:

Ans: 1) **Arithmetic Operators:** It perform basic arithmetic operations. For example, "+" is used to add and "?" is used for subtraction.

2)**Assignment Operators:** It is used to assigning values to the variables.

3)**Logical Operators:** It is used to performing logical operations like And, Or, and Not.

4)**Membership Operators:** It is used to checking whether an element is a member of the sequence (list, dictionary, tuples) or not.

5)**Identity Operators:** It is used to check two values or variable which are located on the same part of the memory.

6)**Bitwise Operators:** It is used to performing operations over the bits. The binary operators (&, |, OR) work on bits.

7)**Relational Operators:** It is used to comparing the values. These operators test the conditions and then returns a Boolean value either True or False.

12) Is Python interpreted language?

Ans: Python is an interpreted language. The Python language program runs directly from the source code. It converts the source code into an intermediate language code, which is again translated into machine language that must be executed.

13) Global variable: Variables declared outside a function or in global space are called global variables.

14) Local Variable: Variables declared inside a function is called Local variable. This variable is present in the local space and not in the global space.

15) Dictionary in Python: The Python dictionary is a built-in data type. It defines a one-to-one relationship between keys and values. Dictionaries contain a pair of keys and their corresponding values. It stores elements in key and value pairs.

16) Pass in Python: Pass specifies a Python statement without operations. It is a placeholder in a compound statement. If we want to create an empty class or functions, the pass keyword helps to pass the control without error.

Example:

```
class Student:
    pass # Passing class
class Student:
  def info():
     pass # Passing function
```

17) **Which programming language is a good choice between Java and Python?**

Criteria	Java	Python
Ease of use	Good	Very Good
Coding Speed	Average	Excellent
Data types	Static type	Dynamic type
Data Science and Machine learning application	Average	Very Good

18) Difference between Python 2.X and Python 3.X?

Ans: Python 2.x is an older version of Python. Python 3.x is newer and latest version. Python 2.x is legacy now. Python 3.x is the present and future of this language.

19)How Python does Compile time and Runtime Checking?

Ans: In Python, some amount of coding is done at compile time, but most of the checking such as type, name, etc. are postponed until code execution. The Python code will fail only with an exception when the code execution path does not exist.

20) enumerate () function: It is used to iterate through the sequence and retrieve the index position and its corresponding value at the same time.

21) Type Conversation in Python:

int() - converts any data type into integer type

float() - converts any data type into float type

ord() - converts characters into integer

hex() - converts integers to hexadecimal

oct() - converts integer to octal

tuple() - This function is used to convert to a tuple.

set() - This function returns the type after converting to set.

list() - This function is used to convert any data type to a list type.

dict() - This function is used to convert a tuple of order (key, value) into a dictionary.**str() -** Used to convert integer into a string.

Complex (real, image) - This function converts real numbers to complex (real, image) number.

SQL (Structured Query Language):

1) What is SQL?

Ans: SQL stands for the Structured Query Language. It is the standard language used to maintain the relational database and perform many different data manipulation operations on the data.

2) Uses of SQL:

- To execute queries against a database
- To retrieve data from a database
- To inserts records in a database
- To updates records in a database
- To delete records from a database
- To create new databases.

3) Subsets of SQL:

1)Data definition language (DDL): It defines the data structure that consists of commands like CREATE, ALTER, DROP, etc.

* Purpose of DDL**:** DDL stands for Data definition language. It is the subset of a database that defines the data structure of the database when the database is created. **For example,** we can use the DDL commands to add, remove, or modify tables

2)Data manipulation language (DML): It is used to manipulate existing data in the database. The commands in this category are SELECT, UPDATE, INSERT, etc.

* Purpose of DML: It makes the user able to retrieve and manipulate data in a relational database. The DML commands can only perform read-only operations on data.

3)Data control language (DCL): It controls access to the data stored in the database. The commands in this category include GRANT and REVOKE.

GRANT: It enables system administrators to assign privileges and roles to the specific user accounts to perform specific tasks on the database.

REVOKE: It enables system administrators to revoke privileges and roles from the user accounts so that they cannot use the previously assigned permission on the database.

Purpose of DCL: allows users to control access and permission management to the database.

4)Transaction Control Language (TCL): It is used to deal with the transaction operations in the database. The commands in this category are COMMIT, ROLLBACK, SET TRANSACTION, SAVEPOINT, etc.

4) Primary Key in SQL: A primary key is a field or the combination of fields that uniquely identify each record in the table.

* A table can have duplicate columns, but it cannot have more than one primary key. It always stores unique values into a column. **For example,** the ROLL Number can be treated as the primary key for a student in the university or college.

5) Foreign Key in SQL: The foreign key is used to link one or more tables together. It is also known as the referencing key. A foreign key is specified as a key that is related to the primary key of another table.

6) Unique key in SQL: A unique key is a single or combination of fields that ensure all values stores in the column will be unique. It means a column cannot stores duplicate values

* **For example,** the email addresses and roll numbers of student's tables should be unique.

7) Difference between primary key and Unique key:

Primary Key	Unique Key
The primary key act as a unique identifier for each record in the table.	The unique key is also a unique identifier for records when the primary key is not present in the table.
We cannot store NULL values in the primary key column.	We can store NULL value in the unique key column, but only one NULL is allowed.

8) Trigger in SQL: Triggers are database object. Basically, these are a special type of stored procedure that is automatically executed when a DDL or DML command statement related to the trigger is executed.

9) join in SQL: A JOIN clause is used to combine rows from two or more tables.

10) DELETE in SQL: To removes one or more rows in a table permanently.

Syntax: DELETE FROM table WHERE condition.

11) TABLE IN SQL: Tables are database objects that contain all the data in a database. In tables, data is logically organized in a row and column format.

12) Uses of TABLES in database: It can used to both store and display data in a structured format.

13)Relationships: This option provides to define a foreign key relationship with the other tables.

14)INDEXES/KEYS: We can create indexes or set unique constraints for the columns.

15)Check constraints: This are used to control according to specified rule that the data will be stored by the columns.

HR INTERVIEW QUESTIONS:

1)What is your objective in life?

Ans: Long term goal: My long-term goal is to be a successful person and to make my parents feel proud.

Short term goal: My short-term goal is to get placed in any reputed company like yours.

2)Why you are interested in IT job?

Ans: I am interested in this job because I can see that in this role my skills could help solve this problem within your company. I can also see an opportunity for me to learn and grow skills.

3) According to you what is success?

Ans: Doing something that makes you happy and send something that you enjoy.

4)Are you Ok with nightshifts? (or) Are you comfortable with nightshifts?

Ans: It is not like a impossible thing for me but I will prefer to work in day shift because of my health and mental fitness. But if needed in urgent I will be available.

5)Are you ready to relocate (Or) Willing to relocate?

Ans: For this right opportunity I am willing to relocate I believe that this position and company is that opportunity.

6)Which company do you prefer big or small. Why?

Ans: The most significant advantage of working for a small company is having the opportunity to work on a variety of tasks. I want to work for a large company because there are different opportunities within the company. I also feel a larger company provides better training.

7) Difference between Smart work and Hard work?

Ans: Smart work and hard work are related to each other. Without being a hard worker, we can't be a smart worker. Smart worker comes from the hard worker. So, hard work increases your accuracy and smart work increases accuracy as well as efficiency.

8) Why should we hire you?

Ans: As a fresher, I need a platform to prove my ability. If I will be a part of your company, I will put my efforts and strength to uplift your company. None is born with experience, and if u hire me, I will get professional experience through your company.

9) Salary expectations: or What salary do you except?

Ans: As of now, I haven't thought much about it. I am more focused on learning the requirements for this position that I am applying for.

10) Greatest Strengths and weakness?

Ans: My strength is my ability to convert negative work environment into positive. At the same time, developing a supportive team. I am also capable of keeping many projects on track and ensuring deadlines are met. As far as my weakness is concerned, I get impatient sometimes to get everything done very quickly. To tackle the problem, I am trying to re-consider the to-do list and prioritize the tasks.

11) Describe yourself in one word?

Ans: Original, Genuine, Logical, Incredible, Focused, Curious, Active, Balanced, Quick.

12)Why are you applying for this job? / Why this role attracts you / Why you want to join this company?

Ans: I have applied for this vacancy because it is an excellent match for my skills and experience. This role is exactly the sort of role I am currently targeting, and I am confident I will be able to make a major contribution.

13)How do you get to know about our company?

Ans: I get to know about your company from several online websites./College placements.

14)Do you believe working alone or Teamwork?

Ans: Working in teams increases collaboration and brainstorming. As a result, more ideas are developed, and productivity improves 2 or more people are always better than one for solving problems, finishing off difficult tasks and increasing creativity.

15)Willing to work 24/7? Ans: In practical, working 24/7 is not possible.

16)Tell me how you are unique from others?

Ans: I really enjoy learning new things and I am constantly seeking out new learning opportunities.

17)How do you behave with strangers?

Ans: 1) I should not get any things from strangers.

2)I should not go anywhere with them.

18)How do you make friends?

Ans: 1) Start small with people you know

2) Get our self out there

3)Be open

4)Get to know the person

5)Connect with Genuinely

19)About your college?

Ans: Kalasalingam Academy of Research and Education (KARE), formerly Kalasalingam University, it is a private deemed to be University located in krishnankoil near 60kms far from Madurai in Tamil Nādu, India. The campus is close to the ancient temple town of Srivelliputhur.

*KARE was established in 1984 by the kalasalingam Anandham Ammal charities. It was granted deemed to be University status in 2006.

*KARE was ranked 61 among Engineering colleges by the National institutional Ranking Framework (NIRF) in 2019.

20)Where do you see yourself in next 5 years/ 10 years?

Ans: Over the next few years, I want to explore and develop skills in project management. In 5 years, I want to have gained experience in leading projects for major clients. I will be looking for opportunities to expand my responsibilities within this role to work towards my goal.

21) Do you have any questions to ask?

Ans: Yes, thank you for giving me this opportunity.

1)Do you think I am missing any qualifications needed for this position?

2)What are the goals the company has for the next year?

3)What is the company culture like?

4)What's your favourite part of your job?

5)Do employees receive regular feedback on their work?

6)How has the company grown over the last five years?

NOTE: **You never say NO for this question. You can ask at least 3-4 questions while they ask you this question.**

22) What motivates you?

Ans: "Learning new things every day for my individual growth has been a great motivating aspect of my life. It has also made me pick new hobbies such as music."

23) What do your friends say about you?

Ans: "My friends would describe me as a great listener and a problem solver. Some of my friends probably say that I am very organized and reliable."

24) Are you a risk taker?

Ans: "I would consider myself to be neither an extreme risk-taker nor a total stuffed shirt. Taking a risk depends on the situation presented. I do not oppose it when it's necessary."

25) Would you lie for company?

Ans: I am honest and truthful. I would certainly not prefer lying, but my teacher once said- "If you had to choose between being right or being kind, always choose kind"

26) Do you prefer working alone or team?

Ans: “In the past as well, I had to perform various tasks and complete assignments in a team as well as alone. I have tried my best to prove myself in both scenarios. In other words, I can easily adjust to both while I prefer working alone.”

27) How long you are planning to work with us if I hire you?

Ans: "If I get hired, I am planning to work in this company for as long as there is mutual growth of the company as well as me."

28)What was the toughest decision you ever had to make?

Ans: Decisions are not tough until we don't have a clear idea about our options. I don't face such difficulty because I am always working on my options to choose my best.

29) What are your hobbies?

Ans: Playing and watching Cricket, playing carroms and badminton, Listening to Music and browsing the internet.

30) What motivates you to do good job?

Ans: My primary source of inspiration is my family. They are my greatest source of strength as well as my stable supporters. When I see my parents working, it motivates me to do the same. Their commitment to work inspires me to follow in their footsteps. They are people that are self-motivated.

31) Have you lead any team efficiently?

Ans: A good leader, in my view, is someone who can make choices while still respecting the thoughts and concerns of others. This often requires being able to admit whether you’re mistaken or failing in any way.

32)How do you manage your stress?

Ans: Working under pressure, in my opinion, can also be beneficial rather than harmful. It has taught me how to set priorities and maintain a healthy work-life balance.

33) What do you want to improve in yourself?

Ans: Perhaps I want to learn new things, replace bad habits, become more productive, find emotional balance, or improve my relationships.

34) What are you expecting from this job? (Or) Why do you want to work in this company?

Ans: I've known for a long time that doing the same thing every day isn't my thing. And, based on what you've told me about the work position, it seems to be interesting and just what I'm looking for. I'll be working on a variety of designs, and this one will be exclusive and exciting.

35) What if we don't select you for this job?

Ans: Despite performing well in the selection process, if I am not chosen then, your expectations from the applicant in terms of performance are more. Next time, I'd give my best, and meanwhile, I'm going to focus on strengthening my skills.

36) What are your plans for higher studies?

Ans: While I have no plans to seek an advanced degree at this time, I am open to further education, whether it be internal or external. Since technology shifts so quickly in our industry, I try to stay on top of it in my own personal research.

37) Will you work under a bond of 2 years?

Ans: Sure Sir/Madam, I'm willing to sign the bond if I'm having everything I've been waiting for in a dream job and if you think I'm the best choice for this role.

38) If you get a job with higher package from here, what will you do?

Ans: My work is very important to me. Money certainly plays an important role in our survival and living conditions, but I'd rather take a career that I like rather than flipping (turn over) jobs for the money.

39) Can you work under pressure? (Or) Describe your ability to work under pressure?

Ans: Working under pressure has always been a learning experience for me because it helps me grow. I have always worked well during deadline, and I always learned how to work more efficiently afterward.

40) Difference between Confidence and Over Confidence?

Ans: Confidence: “I can do this job”.

Overconfidence: “Only I can do this job.”

** Overconfidence is about disrespecting the ability of others, while confidence is about honouring your own ability.

41) What makes you angry?

Ans: I am not a short-tempered person, but I feel a bit of annoyance when someone disturbs me in my work without a genuine reason. Although I am an even-tempered person, when I get angry.

42) What are your achievements in life?

Ans: My biggest achievement is overcoming my fear of failure. It gives me a complete sense of living and makes me more confident.

43) How do you rate yourself on a scale of 1 to 10?

Ans: I will rate myself 8 out of 10 because I would never like to think that there should be a room left for putting in more efforts. That thought will create an interest in learning the things.

44) What is more important to you: The Money or Work?

Ans: I would say that work is more important. If we work and achieve company goals then obviously money would follow. I believe work to be prior.

45) Would you like to work overtime or odd hours?

Ans: I know that in the company being asked to work for an extended number of hours comes with a good reason, so I am ok with it. It an extra effort means I am doing something for the company, I will be happy to do it.

46) How do you feel about working weekends and nightshifts?

Ans: I am a fresher and I hardly have any exposure of the corporate world. As far as nightshifts are concerned, I would like to say that I am a night person and I like to do my studies generally at night. I have no issues working during weekends and at night, provided I get enough balanced to relax.

47) Do you consider yourself successful?

Ans: Success to me is spending most of the time focused on work that is fulfilling and increasing my efficiency to become helpful for the organization growth. While I also believe that greater success can be achieved while working as a team towards a common goal.

48) Are you willing to travel?

Ans: Yes. I love traveling. Adjusting to new places and meeting new people would be a delightful experience for me.

49) Tell me about your dream job?

Ans: The only dream job I've always had was a job that keeps me busy, a job wherein I get to contribute to the company's success

50)Are you a team player?

Ans: Yes. While I will deny the fact that I can work independently with minimal supervision, I'm also one companion every leader would ever want to be in his team. Whatever task is assigned to me, I make sure it meets and exceeds what is expected of me. I also make it a point to reach out to teammates whenever needed.

51) What is your Philosophy towards work?

Ans: I have only one philosophy when it comes to work: every piece of work, regardless of size, must be done on time and in the right manner.

52) What have you learned mistakes from the job?

Ans: I learned that without proper coordination, even the simplest task could cause problems in a project. I had this problem during my first job. From that time on, I made sure every I think follows every detail and coordination.

53)How would you know you are successful in this job?

Ans: Being successful means goals that are set are being met. Being successful also means standards are not only reached but also exceeded wherever possible.

54) What have you done to improve your knowledge in last year?

Ans: I have attended several self-improvements, time management, and personality development seminars.

55) Why do you think you would do well at this job?

Ans: Because I love this job, I feel very confident of myself and my ability to deliver nothing short of quality output. My years of experience helped me develop these skills.

56) What irritates you about co-workers?
Ans: I always get along fine with my co-workers. I tend to be open-minded and very considerate.

57) Do your skills match this job or another job more closely?
Ans: I feel my skills are best fit for this job.

58) What has disappointed you about work?
Ans: I once felt that I was not being given enough challenges to work on. I was a bit disappointed because I was so eager to go for more.

59) If you were hiring a manager for this job, what would you look for?
Ans: I would look into two essential things: the ability to do the job right and the proper attitude to do it. Skills without the right attitude will not contribute to productive output.

60) What role do you tend to play in a team?
Ans: I tend to be versatile when it comes to being a team player. I can act as a leader, an assistant, a communicator, a secretary, whatever role that will ensure the success of the team. That's because understanding the different roles will allow each player to take on the role of others, in times of need.

61) What was the most difficult decision for you made?
Ans: It was a time when I had to choose between joining a group of employees protesting some issues in the company and staying away from the issue. I ended up being a mediator between the employees and our immediate supervisor, and I was glad I made that decision because it all ended well and without further conflicts in the workplace.

62) Are you willing to make sacrifices for this company?
Ans: I would be willing to do that to the best of my ability. I can manage personal matters on my own without causing conflicts when management needs me most. However, I will not comprise on my values.

63) What are the qualities do you look for in a boss?
Ans: I look at my boss as a person who can easily relate with me, can make firm decisions, and is transparent. A boss with a sense of humour would also be a delightful idea.

64) Are you applying to other companies as well?
Ans: Yes. I have submitted my applications in some of the best companies like [mention some company names]. Above all, my priority and hope are that I will be able to land a job in your company.

65) Do you know anyone who works in our company?
Ans: No. I found your ads in a popular job posting website.

* If yes say their name and say how that person relates to you, job role and work experience (in years).

66) How do you propose to compensate for your lack of experience?
Ans: I am a quick learner. Every time there is something new thrown at me, I take time to study it at the soonest time.

67) Have you ever worked in a job that you hated?
Ans: Not exactly hated. I once had a job that does not exactly match my qualification. Nevertheless, I was glad I took the job because it was an opportunity to learn something new and added to my list of experience.

68) What would your previous supervisor say your best point is?
Ans: Some of my strongest points at work are being hardworking, patient, and a quick learner.

69) What is the most challenging thing about working with you?
Ans: My co-workers often say I'm too serious about my work. However, I have attended some personality enhancing seminars to blend better with colleagues.

70) What suggestion/s have you made in your previous employment that was implemented?
Ans: I once suggested that management and staff should have more regular meetings instead of quarterly meetings. I was happy that the administration took note of this and even commended me for taking a good initiative.

71) Would you rather be liked or feared?
Ans: I would like to be liked, but more importantly, I would prefer to be respected. Being feared does not necessarily command respect.

72) How do you cope with stress?
Ans: I pause for a few minutes, look out into the window. Brief pauses in enough to get me charged again. I can manage stress well enough and does not decrease my productivity level.

73) Would you rather work for money or job satisfaction?
Ans: Job satisfaction is more important to me. Working just for the money may not be fulfilling if I don't like the job in the first place. Job satisfaction makes me stay productive; money would naturally come along as well.

74) Describe your work policy ethics.
Ans: Always give my best in every job, if not, don't do it at all.

75) What was your biggest challenge with your previous boss?
Ans: My previous boss was very strict when it came to deadlines and output. It was a challenge for me to meet every expectation he made. It was also a good learning experience for me because it only made me better at what I do.

76) Do you enjoy working as part of a team?
Ans: Yes, I enjoy it very much. Being part of a team means you get to contribute for the good of all, while at the same time there's are members who can support you and share more knowledge with you.

77) Why do you think you deserve this job?
Ans: Because I believe my talents and skills will be a big contribution to your company's continuing pursuit of excellence. I'm a fast worker and hardworking person who can be a very reliable asset to this company.

78) Has anything ever irritated you about people you've worked with?
Ans: I go along fine with co-workers. When I feel the other guy's, attitude is a negative one; I try my best to approach him and talk things over. I always make it a point to stay positive and transparent with people around me.

COMPUTER/ LAPTOP SHORTCUT KEYS:

Windows 10

Essentials

Ctrl+

- **A** = Select All
- **C** = Copy
- **V** = Paste
- **X** = Cut
- **Z** = Undo
- **Y** = History
- **D** = Delete
- **P** = Print
- **F** = Find
- **S** = Save
- **N** = New
- **O** = Open
- **W** = Close

⊞ +

- **I** = Windows Settings
- **E** = File Explorer
- **A** = Action Center
- **L** = Lock Screen
- **V** = Clipboard Bin
- **.** or **;** = Emoji panel
- **D** = Show Desktop
- **M** = Minimize All Apps
- **X** = Quick Link Menu
- **C** = Open Cortana
- **S** = Open Search
- **R** = Open "Run"
- **Tab** = Task View

Desktop

- ⊞ or **Ctrl+Esc** = Start Menu
- **Ctrl+Shift+Esc** = Task Manager
- **Alt+F4** = Close Active Window
- **Ctrl+F5** or **Ctrl R** = Refresh
- **Ctrl+Alt+Tab** = View Open Apps
- **Alt+Tab** = Switch Apps
- ⊞ + ← = Snap Window to Left
- ⊞ + → = Snap Window to Right
- ⊞ + ↑ = Maximize Selected Window
- ⊞ + ↓ = Minimize Selected Window
- **Alt+Esc** = Cycle Open Windows
- ⊞ **+Ctrl+D** = Create Virtual Desktop
- ⊞ **+Ctrl+F4** = Close Active Desktop
- **Ctrl+Shift+Click=** Run as Admin

Screenshots

- **PrtScr** = Desktop Screenshot in Clipboard
- **Alt+PrtScr** = Window Screenshot in Clipboard
- ⊞ **+PrtScrS** = Screenshot in Screenshots Folder
- ⊞ **+Shift+S** = Capture with Snip & Sketch

Ctrl+Shift+T = Reopen Closed Webpage
(works in most browsers)

Frozen?

Ctrl+Alt+Del =
Invoke Access to:

- ▸**Lock**
- ▸**Switch User**
- ▸**Sign out**(or reboot)
- ▸**Change a Password**
- ▸**Task Manager**>
  allows to close frozen apps

www.shortcutwizard.com

COMMON CODING QUESTIONS:

1) FACTORIAL OF A NUMBER.

2) FIBONACCI SERIES.

3) SWAPPING OF TWO NUMBERS WITHOUT THIRD VARIABLE.

4) ARMSTRONG NUMBER OR NOT.

5) PALINDROME OR NOT.

6) REVERSE OF A NUMBER.

7) LINEAR SEARCH.

8) BINARY SEARCH.

9) HOW DO YOU CALCULATE THE NUMBER OF VOWELS AMD CONSONENTS IN A STRING.

10)HOW DO YOU FIND THE SECOND LARGEST NUMBER IN AN ARRAY.

11) PRIME NUMBER OR NOT.

12) SUM OF ELEMENTS IN AN ARRAY.

13) REVERSE AN ARRAY.

14) NUMBER OF WORDS IN A STRING.

15) NUMBER OF OCCURENCES IN A STRING.

16) REMOVE DUPLICATE ELEMENTS FROM AN LIST.

********** **THE END** **********

ALL THE BEST FOR YOUR PLACEMENTS.

Written by:

B. RAGHUNATH REDDY.

EXPLANATION OF CODES:

1) FACTORIAL OF A NUMBER USING FOR LOOP:

```
// Program to calculate the sum of first n natural numbers
// Positive integers 1,2,3...n are known as natural numbers

#include <stdio.h>
int main()
{
    int num, count, sum = 0;

    printf("Enter a positive integer: ");
    scanf("%d", &num);

    // for loop terminates when num is less than count
    for(count = 1; count <= num; ++count)
    {
        sum += count;
    }

    printf("Sum = %d", sum);

    return 0;
}
```

Output

```
Enter a positive integer: 10
Sum = 55
```

EXPLANATION:

The value entered by the user is stored in the variable `num`. Suppose, the user entered 10.

The `count` is initialized to 1 and the test expression is evaluated. Since the test expression `count<=num` (1 less than or equal to 10) is true, the body of `for` loop is executed and the value of `sum` will equal to 1.

Then, the update statement `++count` is executed and `count` will equal to 2.

Again, the test expression is evaluated. Since 2 is also less than 10, the

test expression is evaluated to true and the body of the `for` loop is executed. Now, `sum` will equal 3.
This process goes on and the sum is calculated until the `count` reaches 11.
When the `count` is 11, the test expression is evaluated to 0 (false), and the loop terminates.
Then, the value of `sum` is printed on the screen.

How for loop works?

- The initialization statement is executed only once.
- Then, the test expression is evaluated. If the test expression is evaluated to false, the `for` loop is terminated.
- However, if the test expression is evaluated to true, statements inside the body of the `for` loop are executed, and the update expression is updated.
- Again the test expression is evaluated.

This process goes on until the test expression is false. When the test expression is false, the loop terminates.

2) FIBONACII SERIES

The Fibonacci sequence is a sequence where the next term is the sum of the previous two terms.

Fibonacci Series up to n terms:

```
#include <stdio.h>
int main() {

  int i, n;

  // initialize first and second terms
  int t1 = 0, t2 = 1;
```

```
  // initialize the next term (3rd term)
  int nextTerm = t1 + t2;

  // get no. of terms from user
  printf("Enter the number of terms: ");
  scanf("%d", &n);

  // print the first two terms t1 and t2
  printf("Fibonacci Series: %d, %d, ", t1, t2);

  // print 3rd to nth terms
  for (i = 3; i <= n; ++i) {
    printf("%d, ", nextTerm);
    t1 = t2;
    t2 = nextTerm;
    nextTerm = t1 + t2;
  }

  return 0;
}
```

Output

```
Enter the number of terms: 10
Fibonacci Series: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34,
```

Let us suppose `n = 10`. First, we have printed the first two terms of the Fibonacci sequence before using a `for` loop to print the next `n` terms.

Let us see how the `for` loop works:

i	t1	t2	nextTerm
3	0	1	1
4	1	1	2
5	1	2	3

6	2	3	5
7	3	5	8
8	5	8	13
9	8	13	21
10	13	21	34

3) SWAPPING OF TWO NUMBERS WITHOUT USING THIRD VARIABLE:

```
1.  #include<stdio.h>
2.  int main()
3.  {
4.  int a=10, b=20;
5.  printf("Before swap a=%d b=%d",a,b);
6.  a=a+b;//a=30 (10+20)
7.  b=a-b;//b=10 (30-20)
8.  a=a-b;//a=20 (30-10)
9.  printf("\nAfter swap a=%d b=%d",a,b);
10. return 0;
11. }
```

Output:

```
Before swap a=10 b=20
After swap a=20 b=10
```

4) REVERSE OF A NUMBER:

```
#include <stdio.h>
int main() {
    int n, rev = 0, remainder;
    printf("Enter an integer: ");
    scanf("%d", &n);
    while (n != 0) {
```

```
        remainder = n % 10;
        rev = rev * 10 + remainder;
        n /= 10;
    }
    printf("Reversed number = %d", rev);
    return 0;
}
```

Output

```
Enter an integer: 2345
Reversed number = 5432
```

EXPLANATION:

This program takes an integer input from the user. Then the `while` loop is used until `n != 0` is false (0).

In each iteration of the loop, the remainder when `n` is divided by 10 is calculated and the value of `n` is reduced by 10 times.

Inside the loop, the reversed number is computed using:

```
rev = rev*10 + remainder;
```

5) ARMSTRONG NUMBER:

A positive integer is called an Armstrong number (of order `n`) if

```
abcd... = a^n + b^n + c^n + d^n +
```

In the case of an Armstrong number of 3 digits, the sum of cubes of each digit is equal to the number itself.

For example, 153 is an Armstrong number because

```
153 = 1*1*1 + 5*5*5 + 3*3*3
```

CODE IN C LANG:

```c
#include <stdio.h>
int main() {
    int num, originalNum, remainder, result = 0;
    printf("Enter a three-digit integer: ");
    scanf("%d", &num);
    originalNum = num;

    while (originalNum != 0) {
       // remainder contains the last digit
        remainder = originalNum % 10;

       result += remainder * remainder * remainder;

       // removing last digit from the orignal number
       originalNum /= 10;
    }

    if (result == num)
        printf("%d is an Armstrong number.", num);
    else
        printf("%d is not an Armstrong number.", num);

    return 0;
}
```

Output

```
Enter a three-digit integer: 371
371 is an Armstrong number.
```

EXPLANATION:

In this program, the number of digits of an integer is calculated first and stored in `n`. And, the `pow()` function is used to compute the power of individual digits in each iteration of the second `for` loop.

6) PALINDROME NUMBER: An integer is a palindrome if the reverse of that number is equal to the original number.

```
#include <stdio.h>
int main() {
  int n, reversed = 0, remainder, original;
    printf("Enter an integer: ");
    scanf("%d", &n);
    original = n;

    // reversed integer is stored in reversed variable
    while (n != 0) {
        remainder = n % 10;
        reversed = reversed * 10 + remainder;
        n /= 10;
    }

    // palindrome if orignal and reversed are equal
    if (original == reversed)
        printf("%d is a palindrome.", original);
    else
        printf("%d is not a palindrome.", original);

    return 0;
}
```

Output

```
Enter an integer: 1001
1001 is a palindrome.
```

EXPLANATION:

Here, the user is asked to enter an integer. The number is stored in variable `n`. We then assigned this number to another variable `orignal`. Then, the reverse of n is found and stored in `reversed`. If `original` is equal to `reversed`, the number entered by the user is a palindrome.

7) PRIME NUMBER OR NOT: A prime number is a positive integer that is divisible only by `1` and itself. For example: 2, 3, 5, 7, 11, 13, 17

```c
#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) {

    // if n is divisible by i, then n is not prime
    // change flag to 1 for non-prime number
    if (n % i == 0) {
      flag = 1;
      break;
    }
  }

  // 0 and 1 are not prime numbers
  if (n == 0 || n == 1) {
    printf("%d is neither prime nor composite.", n);
  }
  else {

    // flag is 0 for prime numbers
    if (flag == 0)
      printf("%d is a prime number.", n);
    else
      printf("%d is not a prime number.", n);
  }

  return 0;
}
```

Output

```
Enter a positive integer: 29
29 is a prime number.
```

Explanation:

In the program, a for loop is iterated from `i = 2` to `i < n/2`.

In each iteration, whether `n` is perfectly divisible by `i` is checked using:

```
if (n % i == 0) {
    flag = 1;
    break;
}
```

If `n` is perfectly divisible by `i`, `n` is not a prime number. In this case, `flag` is set to 1, and the loop is terminated using the `break` statement.

Notice that we have initialized `flag` as 0 during the start of our program.

So, if `n` is a prime number after the loop, `flag` will still be 0. However, if `n` is a non-prime number, `flag` will be 1.

8) COUNT THE NUMBER OF WORDS IN A STRING:

Program in python 3.6

```
1. s=input().split()
2. print(len(s))
```

Explanation:

input() means we are taking the input as string.

Split means divide the input from the string according to the space.

- For example, if we take "hello world" this will be splitted as [" hello", "world"].

len is used to find the length of list.

So, the word count is: 2

- If we take input as 4 3 2 1 then the output (Words in a string) should be 4 i.e. 4 3 2 1.

9) Find the largest and smallest number/Elements in an array:

Algorithm: 1. The program takes an array of elements.
2. Using a for loop, the largest and smallest element is found.
3. The result is printed.
4. Exit.

Code in C++ 17(GCC 9.1) language:

```
#include<iostream>
using namespace std;

int main() {

   int array[5], i;
   int lg, sm;

   cout << "Enter 5 numbers:";
   for (i = 0; i < 5; i++) {
      cin >> array[i];
   }

   lg = array[0];
   sm = array[0];

   for (i = 0; i < 5; i++) {
      if (lg < array[i]) {
         lg = array[i];
      }

      if (sm > array[i]) {
         sm = array[i];
      }
   }
   cout << "Largest element is:" << lg;
   cout << "\nSmallest element is:" << sm;

   return 0;
         }
```

Output:

```
Enter the size of the array: 5
Enter the elements of the array:  1 2 3 4 5
Largest element: 5
Smallest element: 1
```

Program Explanation:

1. The user is initially asked to enter the size of the array and it is stored in the variable ‘n’.
2. An array ‘arr’ of data type integer is declared with size 10.
3. Elements of the array are asked to enter and stored in ‘arr’ using a for loop.
4. The value at index 0 of arr is assigned to the variable ‘max’.
5. Using a for loop and initializing ‘i’ as 0, the largest element is found.
6. If max is less than arr[i], then value of arr[i] is assigned to max. i is incremented in every iteration.
7. The loop continues till ‘i’ is less than ‘n’.
8. Similarly, the smallest element is found.
9. The value at index 0 of arr is assigned to the variable ‘min’.
10. Using a for loop the smallest element is assigned to min.
11. The result is then printed.

10) REMOVE DUPLICATE ELEMENTS FROM A LIST:

Example-1: By using set()

Code in python 3.6

```
list_1 = [1, 2, 1, 4, 6]

print(list(set(list_1)))
```

```
OUTPUT: [1, 2, 4, 6]
```

Explanation: In the above example, we first convert the list into a set, then we again convert it into a list. Set cannot have a duplicate item in it, so `set()` keeps only an instance of the item.

EXAMPLE -2: Remove the items that are duplicated in two lists

```
list_1 = [1, 2, 1, 4, 6]
list_2 = [7, 8, 2, 1]

print(list(set(list_1) ^ set(list_2)))
```

OUTPUT:

```
[4, 6, 7, 8]
```

Explanation: In the above example, the items that are present in both lists are removed.

- Firstly, both lists are converted to two sets to remove the duplicate items from each list.
- Then, ^ gets the symmetric difference of two lists (excludes the overlapping elements of two sets).

11) LINEAR SEARCH CODE IN PYTHON 3.6:

```
def linearSearch(array, n, x):

    # Going through array sequencially
    for i in range(0, n):
        if (array[i] == x):
            return i
    return -1


array = [2, 4, 0, 1, 9]
x = 1
n = len(array)
result = linearSearch(array, n, x)
if(result == -1):
    print("Element not found")
else:
    print("Element found at index: ", result)
```

Time Complexity: O(n)

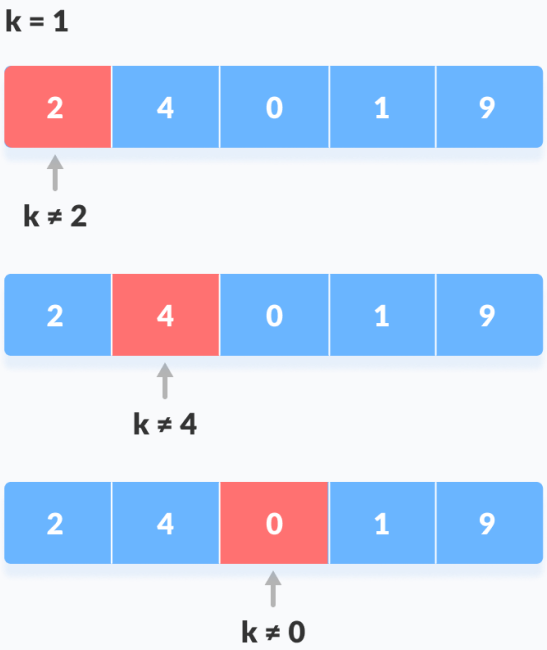
Space Complexity: O(1)

HOW LINEAR SEARCH WORKS?

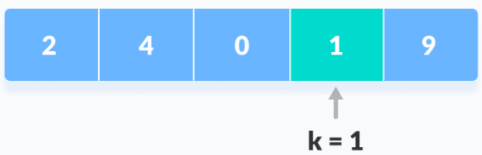
The following steps are followed to search for an element k = 1 in the list below.

Array to be searched for

1. Start from the first element, compare k with each element x.



Compare with each element



2. If x == k, return the index. Element found
3. Else, return not found.

12) BINARY SEARCH IN PYTHON 3.6:

Binary search can be implemented only on a sorted list of items. If the elements are not sorted already, we need to sort them first.

```
def binarySearch(array, x, low, high):

    # Repeat until the pointers low and high meet each other
    while low <= high:

        mid = low + (high - low)//2

        if array[mid] == x:
            return mid

        elif array[mid] < x:
            low = mid + 1

        else:
            high = mid - 1

    return -1


array = [3, 4, 5, 6, 7, 8, 9]
x = 4

result = binarySearch(array, x, 0, len(array)-1)

if result != -1:
    print("Element is present at index " + str(result))
else:
    print("Not found")
```

Time Complexities:

- **Best case complexity**: O(1)
- **Average case complexity**: O(log n)
- **Worst case complexity**: O(log n)
- **Space Complexity:**O(1)

HOW BINARY SEARCH WORKS:

•The array in which searching is to be performed is:

Initial array

Let x = 4 be the element to be searched.

• Set two pointers low and high at the lowest and the highest positions respectively.

Setting pointers

• Find the middle element mid of the array ie. arr[(low + high)/2] = 6.

Mid element

• If x == mid, then return mid. Else, compare the element to be searched with m.

• If x > mid, compare x with the middle element of the elements on the right side of mid. This is done by setting low to low = mid + 1.

• Else, compare x with the middle element of the elements on the left side of mid. This is done by setting high to high = mid - 1.

Finding mid element

Mid element

- Repeat steps 3 to 6 until low meets high.

Found

• x = 4 is found.

13) NUMBER OF VOWELS AND CONSONENTS IN A STRING:

C LANGUAGE CODE:

```c
#include <stdio.h>
int main() {

  char line[150];
  int vowels, consonant, digit, space;

  // initialize all variables to 0
  vowels = consonant = digit = space = 0;

  // get full line of string input
  printf("Enter a line of string: ");
  fgets(line, sizeof(line), stdin);

  // loop through each character of the string
  for (int i = 0; line[i] != '\0'; ++i) {

    // convert character to lowercase
    line[i] = tolower(line[i]);

    // check if the character is a vowel
    if (line[i] == 'a' || line[i] == 'e' || line[i] == 'i' ||
        line[i] == 'o' || line[i] == 'u') {

      // increment value of vowels by 1
      ++vowels;
    }

    // if it is not a vowel and if it is an alphabet, it is a consonant
    else if ((line[i] >= 'a' && line[i] <= 'z')) {
      ++consonant;
    }

    // check if the character is a digit
    else if (line[i] >= '0' && line[i] <= '9') {
      ++digit;
    }

    // check if the character is an empty space
    else if (line[i] == ' ') {
      ++space;
    }
  }
```

```
  printf("Vowels: %d", vowels);
  printf("\nConsonants: %d", consonant);
  printf("\nDigits: %d", digit);
  printf("\nWhite spaces: %d", space);

  return 0;
}
```

OUTPUT:

```
Enter a line of string: C++ 20 is the latest version of C++ yet.
Vowels: 9
Consonants: 16
Digits: 2
White spaces: 8
```

EXPLANATION:

Here, the string entered by the user is stored in the `line` variable.

Initially, the variables `vowel`, `consonant`, `digit`, and `space` are initialized to **0**.

Then, a `for` loop is used to iterate over the characters of the string. In each iteration, we:

- convert the character to lowercase using the `tolower()` function
- check whether the character is a vowel, a consonant, a digit, or an empty space. Suppose, the character is a consonant. Then, the `consonant` variable is increased by **1**.

When the loop ends, the number of vowels, consonants, digits, and white spaces are stored in variables `vowel`, `consonant`, `digit`, and `space` respectively.

> **Note:** We have used the tolower() function to simplify our program. To use this function, we need to import the ctype.h header file.

14) ADDITION/SUM OF TWO NUMBERS:

Code is in PYTHON 3.6:

```
# This program adds two numbers

num1 = 1.5
num2 = 6.3

# Add two numbers
sum = num1 + num2

# Display the sum
print('The sum of {0} and {1} is {2}'.format(num1, num2, sum))
```

Output

```
Enter first number: 1.5
Enter second number: 6.3
The sum of 1.5 and 6.3 is 7.8
```

EXPLANATION:

In this program, we asked the user to enter two numbers and this program displays the sum of two numbers entered by user.

We use the built-in function `input()` to take the input. Since, `input()` returns a string, we convert the string into number using the `float()` function. Then, the numbers are added.