

## Introduction

Greeting of the Day.

Gm.GA. GE.

Dear sir/madam

Thankyou so much for given me this golden opportunity to introduce my self.

My name is **Vikram Singh** & I'm from **Damoh (MP)**. I belong a nuclear family there are four member in my family my father mr. Gopal Singh Thakur. He is a farmer & my mother ms. Kranti Singh Thakur. She is a domestic engineer/ Housewife.

I have been complete my **schooling** from G.H.S. Bandakpur. & I got 78% & 72% of marks in 10<sup>th</sup> & 12<sup>th</sup>. Currently I'm pursuing **B.Tech** in **civil Engg.** at **DIMT Damoh (MP)**.

**Talk about my technical skills** :- I'm familiar with C & C++ programming languages and I have basic knowledge of COPS and Java. Right Now I'm developing my skills in DBMS.

**Talk about my personal skills** :- I'm adaptive in any environment and I'm a person of positive attitude, hardworking and Dedicated. and sir I believe in simple living and High thinking.

**Talk about my goals** :- My short term goal is to get a job/Join a respective company where I can enhance my skills and grow my career path. and My long term goal is to be an respectable position of that company.

**Talk about my academic project** :- that is IoT Based smart city as consider People figger like smart housing, smart parkings, smart markets and many factor which make there life to easy and comfortable.

**Talk about my Area of Interest** :- I have deep interest in autocad designing & IoTs. & I like playing cricket & kabaddi & visiting with friends & spend time in nature places.

**That's all about me.**

Thanks again for this opportunity.

## INTERVIEW

1. Why should I hire you?

Sir, I have a strong work ethic, I am fast learner and very enthusiastic about this company and the job. I believe that my motivations and commitment will ensure that I quickly become productive and valued member of your team.

2. What are your career goals?

My short term goal is to get a job in required company where I can utilize my skills and improve my career path. My long term goal is to be in respectable position in that organization.

3. What are your salary requirements?

I am a fresher, salary is not first priority for me. This is a big platform to start my career & I also want to improve my knowledge and skills and gain experience so I expect a considerable of salary according to my ability and your company's norms which will fulfill my economical needs.

4. Why do you want to work with our company?

I would be proud to work for a company with such a long history of leadership in the industry. When I read about your company I found that my skills are matching with your requirements where I can showcase my technical skills and to contribute to the company growth.

5. What are your weakness?

I can't say No when someone asks for help. and I am a bit lazy in which I'm not interested. However I am learning to say No.

6. What makes a good leader?

A great leader posses a clear vision, is courageous, has integrity, honesty, humility and clear focus. He or she is a strategic planner and believes in teamwork. The great leaders help people to reach their goals, are not afraid to hire people that might be better than them and take pride in the accomplishments of those they help along the way.

Qualities of a Great leader -

- ① Clear Vision
- ② Inspiration
- ③ Strategic and critical thinking
- ④ Interpersonal communication
- ⑤ Authenticity and self Awareness
- ⑥ Openmindedness and Creativity
- ⑦ flexibility
- ⑧ Responsibility and Dependability
- ⑨ Patience and Tenacity
- ⑩ Continuous Improvement

- You can work under pressure?  
Yes I can work under pressure because working under pressure is nothing! It's a challenge in my view. If we are open to learning new things, If you think it is easy to able under pressure, It always sets never good in my life and recent works with love.
- What does success mean to you?  
If I put a smile on someone face and make him happy. It is a success for me.
- Is there anything which makes you different from other candidates?  
I understand that success is not always granted but there is still hope and I never lose them path whether I succeed or not and I also believe in simple living and high thinking.  
I think this makes me stand alone from all other candidates.
- What are your expectation from the company?  
I would like to work in the company where I can get the opportunity to learn and enhance my skills to become a better professional in the future.
- How do you handle stress, pressure and anxiety?  
I believe in working in a strategic and planned way and finishing my work regularly. I always react to situations rather than to stress.  
In this way, I handle the situation and don't take the stress.
- Q. Where do you see yourself in 5 years?  
Sir, after 5 years I would like to see myself at a great position in your company with great experience, knowledge and skills and a good relationship with all companies members.
- How would you be an asset to the company?  
To become an asset for an company we have to punctual, dedicated, quickly adept of any environment and positive working attitude. I have all of these qualities so I will prove an asset for the company.

## Object oriented programming system:-

It is a system where everything treated as an object. Basically there are 7 feature of it:-

- ① Class
- ② Object
- ③ Inheritance
- ④ Encapsulation
- ⑤ Data Abstraction
- ⑥ Data Hidding
- ⑦ Polymorphism

### - Class :-

Class is a logical entity which contain the information of their members.

### - Object :-

Object is a physical entity which is a collection of member variable stored into heap area at run-time.

### - Inheritance :-

To inherit public and protected member of a class directly accessible in another class.

Following are the type of it:-

- ① Single inheritance
- ② Multiple inheritance
- ③ multilevel
- ④ Hierarchical
- ⑤ Hybrid

### - Different between C, C++ and Java.

| C  | C++                                 | Java  |
|--|-------------------------------------|---|
| C language is a functional procedural lang.  | C++ is a object oriented language.  | Java is a object oriented language. (not pure OOP lang.) also support primitive data type.) |
| C language is a platform dependent language. | C++ is platform dependent language. | Java is platform independent language.  |
| C supports pointer.                          | C++ also support pointer.           | Does not support pointer.   |
| We cannot create one package.                | cannot create one package.          | We can create our own package in Java.  |
| In C there is no any concept of inheritance. | We can use multiple inheritance.    | Support.  |
| Top-down Approach                            | Bottom-up                           | X   |

**Transient variable :-** A transient variable is a variable that may not be serialized.

### - Variable :-

Variable is a quantity that can change there value with respect to time during program execution.

following are the main type of variable:-

#### 1. Member variable :-

A variable who stored garbage value in heap area at runtime known as member variable.

#### 2. Local variable :- auto

A variable who stored garbage value in heap area at compiler time, known as local variable.

#### 3. static variable :-

When one object change the value of static variable then the another object always access that changeable value are called static variable.

#### Member method :-

To access or modify the member variable we use member method.

#### static method :-

To access or modify the static variable we used static variable.

### - Constant :-

It is a quantity that never change there value with respect to time during program execution.

### - Literal :-

fixed value is called literal.

vector class - It provides the capability to implement a growable array of objects.

|          |       |
|----------|-------|
| Page No. | _____ |
| Date     | _____ |

|          |       |
|----------|-------|
| Page No. | _____ |
| Date     | _____ |

### - Function :-

function is a block of code that is used for reusability.

### - Array :-

Array is a variable that contain value of similar data type.

### - Loop :-

Loop is a block of code that execute number of time until its return expression zero.

There are three type of if:

- (1) For loop . (Expression mandatory or not)
- (2) while loop . ( Expression is mandatory)
- (3) Do while loop ( Run atleast one time before changing conditions)

### - Structure :-

Structure is a user define data type that name contain the information of these members.

### - Macros :-

It is a pre-processor which is the segment of code that directly placed there respective called.

### - Macros and function :-

Macros is a pre-processor which start processing before compile time but function processing after compile time.

### - Access modifier :-

scope of member of a class.

#### Public :-

If we declared member of a class public that means we can access it directly into the class but it is ~~not~~ accessible in outside the class by using object.

#### Private :-

If we declared member of a class private that means we can access it directly into class but we can't access by outside the class by using object.

#### Protected :-

If we declared member of a class protected that means we can access it directly into class and their inherited class.

### Pointer :-

Pointer is a variable that contain the address of another variable. If it is used for hold the member.

#### Wild pointer :-

It is a pointer which hold the that data which is declared but not initialized.

#### Dangling pointer :-

It is a pointer which holds that data that was deleted. Always holds memory location of deleted data.

#### Void pointer :-

Void pointer holds that memory location which have not any specific type.

Null Pointers - A pointer which does not hold any memory location.

→ New:-

New is functional operator which is used to initialize members of an object.

→ Delete :-

Delete is functional operator which is used for deinitialize or delete member of a object.

→ Constructor :-

Constructor is a member method, which is used to initialized member of an object.

→ Destructor :-

It is a member method which is used to deinitialized member of an object.

→ Scope resolution operation (SRO):-

Scope resolution operation is used to access global variable in our program. following symbol are used

::, ?:

- Ex.

```
int A = 5;  
  
main()  
{  
    int A = 3;  
    cout << A;  
    // If we want to print 5  
    cout << ::A;  
}
```

output - 5.

→ Invalid function :-

Those function called these function definition stored into respective header file are called invalid function.

→ In Inline function :-

If the function definitions are directly placed into their respective function called Inline function.

→ function over loading :-

Same name with different signature these are three ways to changing the signature.

1. Increasing number of arguments.
2. Changing there data type.
3. By using default arguments.

→ function over reading :-

When we have two inherited class A and B both have same name and same signature. if we pass any reference of child object into parent reference object in class method the child class method called parent method also over reading.

→ What is the use of operator over loading in C++?

If we make a C++ program as simple C program we use operator over reading.

- What is malloc and calloc ?

Malloc :- It is a function it create memory at runtime into heap area

calloc :-

It is a function that create at compile time into stack area

- Call by value and call by reference.

If we want to return multiple values then we use call by reference and if we want to return single value then we use call by value.

- Recursion or Recursive function:-

When function calls itself is called recursion. Static data structure is responsible for perform recursion.

- What is command line argument :-

Console is at command prompt every file is command line argument passed argument that is Ps command line Argument.

- Relation between Has A and Is A .

## DBMS

### Data Base Management System

- Data Base :-

Data Base is a collection of records. Records are collection of organised and structural file always contain data.

- what is Data ?

Data is a raw material entered into CPU.

- What is DBMS ?

DBMS is a system software that perform operation over data base that operation are insertion, deletion, selection and updation.  
Ex :- MS-Excel, Fox-pro.

- What is transactional file and data base.

Data base cannot support redundancy but Transactional files are support redundancy.

- Relational data Base -

Relational data base is a collection of tables. Tables is a collection of records.

- What is Relational data Base Management system ?

RDBMS is a system software that perform operation of relational data base.

- What is schema?

Schema is a data based object and logical member of a table.

Table is a collection of data base schema and it is a collection of Records.

- What is Table or entity?

Every record of a table is called entity and Table.

"Header records called logical entity and table records called physical entity."

- What is Domain and ID?

Every column of a table is called Domain.

ID is a piece of logical entity.

- Entity type and entity set :-

Collection of entity at any instant of time is called entity type and collection of All records is called entity set.

- Keys in DBMS.

Key is an attribute or a set of attribute that help to uniquely identify a tuple or row in a relation or table.

key are also used to establish relationships between the different tables and columns of a relational data base.

"Individual values in a key are called key values."

- What are the types of key?

1. Candidate key
2. Primary key
3. Secondary key
4. Super key
5. Surrogate key
6. Compound and composite key
7. Foreign key
8. Unique key

- Candidate key :-

If it is a filled or attribute which value filled all the value that particular record.

- Primary key :-

Primary key is a candidate key which has uniqueness and natural properties. Unique means in a domain all value are unique.

- Secondary key :-

Accept primary key all the candidate key are secondary key which also have uniqueness and notnull property called alternate or secondary key.

- Super key :-

Super set of candidate key is called super key.

Super key is a single or a group of multiple keys that can uniquely identify types in a table.

- Compound and composite key :-

Two or more then two filled key together makes a candidate key that called compound and composite key.

- Unique key :-

In a domain all value are unique is called uniqueness property and the filled called unique key.

- Surrogate key :-

There is no primary key for our table then based design generate a default primary key that is surrogate key.

- Foreign key :-

The primary key of a child

table has reference to the parent table that reference filed called foreign key.

- Normalization :-

To reduce the repetitibility and redundancy of a table.

Types of normalization :-

- (1) 1NF
- (2) 2NF
- (3) 3NF
- (4) BCNF

1<sup>st</sup> Normal form :- Record should be atomic. As per the rule of first normal form, an attribute (column) of a table cannot hold multiple values.

2<sup>nd</sup> Normal form :- Table is in 1NF

- No non-prime attribute is dependent on the proper subset of any candidate key of the table.

3<sup>rd</sup> Normal form :-

- Table must be in 2NF.
- Transitive function dependency of non-prime attribute on any super key should be removed.

•  $\alpha \rightarrow \beta$  functional dependency exist then  $\alpha$  may be a supercandidate key and  $\beta$  may be a prime key.

Boyce codell normal form :- It is an advance version of 3NF that's why it is also referred as 3.5NF.

- What is prime attribute :-

The attribute which helps to make a candidate key is called prime attribute.

- Non-prime attribute :-

which is not help to make a candidate key is called non-prime key attribute.

- What is structure ?

Structure is a user define datatype that can contain the information of there members.

Ex:-

Structure statement

```
{
    int Roll_Num;
    char Name;
    float Fee;
}s;
main()
{
    scanf ("%d %s %f", &RN, &Name, &Fee);
    printf ("%d %s %f", RN, s.Name, s.Fee);
}
```

- Different between structure and Union and Array !-

Structure Vs Union :- Structure is total size of there members and union is a maximum size of there members.

Structure Vs Arrey :- structure contain different data type and Arrey contain simillar data type.

Join - Merging two or more than two table is called Join.  
Select X, R.Name .

- Inner Join - If Join with reference filled of parent table and primary key of child table of it returns matching is called Inner Join.

- Left join -

- What makes a macro faster than a function in the C programming language?  
Macros are sections of code in the programme that have been given a name. The compiler substitutes this name with the real piece of code whenever it encounters this name.  
To define a macro, use the "#define" directive.  
Macros can be defined either before or within the main method.

- What are the differences between an object-oriented programming language and an object-based programming language?

Object-oriented languages adhere to all Object Oriented Programming concepts, but object-based languages do not adhere to all object oriented programming concepts such as inheritance, polymorphism etc.

- What is precondition and postcondition?

- The precondition indicates what must be true before the function is called.

- The postcondition indicates what will be true when the function finishes its work.

- Why we do need OOP?

Oop aims to implement real-world entities like inheritance, hiding, polymorphism etc in programming.

The main aim of OOP is to bind together the data and the functions that operate on them so that no other part of the code can access this data except that function.

### - Tell me about Threading in Java?

A thread, in the context of Java is the path followed when executing a program.

It is a sequence of nested executed statements or method calls that allow multiple activities within a single process.

### - What is JDK and JRE and JVM.

**JDK:** JDK is a software development environment used for making applets and Java applications. The full form of JDK is Java Development Kit.

Java developers can use it on windows, macOs, solaris and Linux. JDK helps them to code and run Java programs.

### - JRE :-

JRE is a piece of a software which is designed to run other software. It contains the class libraries, launcher class and JVM. If you want to run Java program you need JRE.

### - JVM:-

JVM is an engine that provides a runtime environment to drive the Java code or applications. It converts Java bytecode into machine language. JVM is a part of Java run environment (JRE).

### - What is class loader?

The Java class loader is a part of the Java Runtime Environment that dynamically loads Java classes into the Java Virtual Machine.

The classloader loads the class of the Java program into memory when it is required. It is a class that is used to load other classes in Java virtual machine.

### - Why Java is more secure than other ones?

Java is secure due to the following reasons. Java programs run inside a virtual machine which is known as a sandbox. Java does not support explicit pointer. Byte-code verifier checks the code fragment for illegal code that can violate access right to object.

Because Java compiles as bytecode which then runs inside a virtual machine, it cannot access the computer it runs on like a natively compiled program can.

- What is Java? what are the features of Java?
- Java is a high-level programming language and it is platform-independent.  
Java is a collection of objects. It was developed by sun microsystems.  
There are a lot of applications, websites and games that are developed using Java.

### feature of Java

- ① OOP concept - Encapsulation, Inheritance, Abstraction
- ② Platform Independent
- ③ High-performance
- ④ Multi-Threading

- Why do is Java platform-independent?

Java is platform-independent because it does not depend on any type of platform.

Hence Java is platform-independent.

In Java programs are compiled into byte code and that byte code is platform-independent.

- Why Java is not 100% object oriented?

Because it supports primitive data types like int, byte, long etc. which are not objects. Because in Java we use data types like int, float, double etc. which are not object oriented and of course is what not 100% ob. ori.

## - Python IMP.



1. What is a pointer? Define it. Is there any case use of pointer is seen in Python?

Pointer is a variable which stores the address of other variable which holds some value in it.

Directly pointer is used to point values of variables indirectly. We can manipulate its values Number.

- What is pass in python?

The pass keyword represents a null operation in Python. It is generally used for the purpose of filling up empty blocks of code which may execute during runtime but has yet to be written - without the pass statement in the following code, we may run into some errors during code execution.

```
def myEmptyFunc():
```

```
    # do nothing
```

```
    pass
```

```
myEmptyFunc() # Nothing happens.
```

- What are global, protected and private attributes in python?

- Global variables are public variables that are defined in the global scope. To use the variable in the global scope inside a function, we use the global keyword.

**Protected attributes** are attributes defined with an underscore prefixed to their identifier e.g. - `__name`. They can still be accessed and modified from outside the class they are defined in but a responsible developer should refrain from doing so.

**Private attributes** are attributes with double underscore prefixed to their identifier e.g. - `__name`.

They cannot be accessed or modified from the outside directly and will result in an attribute error if such an attempt is made.

- What is the use of `self` in Python?

`Self` is used to represent the instance of the class. With this keyword, you can access the attributes and methods of the class in python. It binds the attributes with the given arguments.

~~Q~~ `self` is used in different places and often thought to be a keyword. But unlike C++, `self` is not a keyword. But unlike python.

- What is `--init--`?

`Init` is a constructor method in python and is automatically called to allocate memory.

When a new object / instance is created, all classes have a `--init--` method associated with them.

It helps in distinguishing methods and attributes of a class from local variable.

- What is `Break`, `continue` and `pass` in python?

**Break :-**

The break statements terminate the loop immediately and the control flows to the statement after the body of the loop.

**Continue :-**