1. What is C- Language?

History of C

* Developed by Dennis Ritchine in 1972 at Bell Labortories
* It was created to write the UNIX operating system
* C is based on an older language called B. which wa developed by Ken Thompson.

features of C language

1. Simple and Easy to Learn:- C has a small set of keywo and clean syntax

2. Poratable:- You can run the same C- program on diffe computers without changing the code.

3. fast Execution:- It is closer to machine language. So it runs very fast.

4. Structured Language:- code is divided into functions, making it easier to debug and maintain.

Basic structure of a C program

```
# include <stadio.h>

int main {
Printf ("Hello, World!");
return 0;
}
```
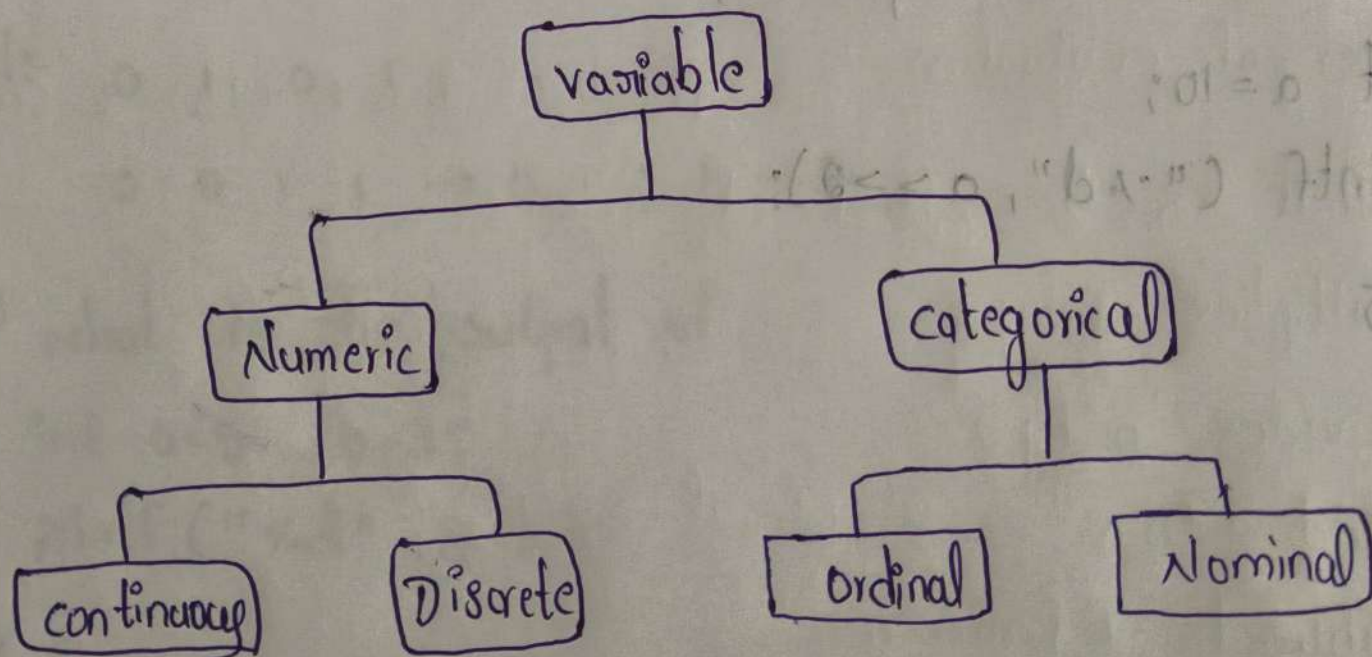
Applications of C

2. what are the application of c-programming?

Ans:- * operating systems :- c is used to develop operating system like windows, UNIX, Linux, and macos because it provides low-level access to memory and hardware

* embedded systems:- c is widely used in programming microcontrollers and embedded devices such as washing machines, cameras and automotive systems.

* compilers and interpreters:- Many language compilers and interpreters are written in c because it is fast and efficient.

* System software and Drivers:- used to develop devices drivers, network drivers, and other system utilities that interact directly with hardware.

* Game Development: c is used in creating game engines and performance-critical parts of games due to its speed and control over resources.

* Desktop Applications:- Many application like text editors, databases, and utilities are built using c.

* Database Systems:- popular databases like MYSQL and oracle are written in c for efficiency.

* Networking and communication: used to develop network protocols, socket programming, and communication tools.

* compiler Design and operating System kernel Development: The Linux kernel itself is written mostly in c.

What is variables?

Ang:- A variable is any characteristic, number, or quantity that can be measured or counted. A Variable may also be called a data items. Age, business income and expenges, country of Birth, vehicle type are example of variables. It is called a variable becaye the value may vary between data units in a population, and may change in value over time.

Type of variables flowchart

```
                    ┌──────────┐
                    │ Variable │
                    └────┬─────┘
              ┌──────────┴──────────┐
         ┌────┴────┐          ┌──────────┐
         │ Numeric │          │categorical│
         └────┬────┘          └────┬─────┘
        ┌─────┴─────┐        ┌──────┴──────┐
  ┌──────────┐ ┌─────────┐ ┌────────┐ ┌─────────┐
  │continuoup│ │Discrete │ │Ordinal │ │ Nominal │
  └──────────┘ └─────────┘ └────────┘ └─────────┘
```

4. What is the different Data types of in c programming?

ans:- The data types in c refer to the type of data used to store the information. For example, the name of a person would be an array of characters, while the age would be in integers, the marks of a student would require a data type.

Type	Date type
Basic data types	int, char, float, and double
Derived data types	array, pointer, and function
user-Defined data types	structure, union and enum
void data types	void.

5. what is format specifiers

→ A format specifier is a placeholder used in programming language like c to indicate the type of data to be printed or read in input/output operation.

* %d : Represents a signed decimal integer
* %u : Represents an unsigned decimal integer
* %f : Represents of floating-point number

Example:- int num = 10

float pi = 3.14;

char letter = 'A';

printf ("integer: %d, float: %f, character: %c \n", num, pi, letter);