* The Different data types available in C++? Explain with examples.

1. Basic (Primitive) Data Types.

* Int is used to store int numbers

Example: -

int age = 25;

|  |
| --- |
|  |

* **float** is used to store decimal numbers with less precision.

**Example: -**

**float temperature = 36.6;**

* **double is like float but stores decimal values with more precision**

**Example:  
double pi = 3.141592;**

* **char is used to store a single character.  
  Example:  
  char grade = 'A';**
* **Bool** is used to store true or false value.

Example: -

bool is Passed = true;

1. **Derived Data Types.**

* **Arrays** store multiple values of the same type in one variable.  
  Example:  
  int numbers [3] = {1, 2, 3};
* **Pointers** store the memory address of another variable.  
  Example:  
  int x = 10; int\* ptr = &x;
* **Functions** return values and can be defined with a return type and parameters.  
  Example:  
  int add (int a, int b) {return a + b; }
* **References** are alternative names for existing variables.  
  Example:  
  int a = 5; int& ref = a;

1. User-defined Data Types

* **Structure (struct)** groups variables of different types

**Example:**

Struct Student

{

int id;

char name [50];

};

* **Union (union)** is like structure, but all members share the same memory location.

**Example:**

union Data

{

int i;

float f;

};

* **Enumeration (enum)** defines a set of named integer constants.

**Example:**

enum Day {Monday, Tuesday, Wednesday};

* **Class (class)** is used in object-oriented programming to define objects with data and functions.

**Example:**

class Car

{

public:

int speed;

void drive ()

{

cout << "Driving" << endl;

} };

1. Void Data Type **void** means "no type". It is used when a function does not return any value

Example: -

void greet () { cout << "Hello!"; }