

Structure vs Union

Both are user-defined data type, the main difference is how they store their members in memory.

```

struct Student
{
    int rollNo;
    float marks;
    char grade;
};
    
```

Each member gets separate memory.

→ 4
→ 4 + padding
→ 1

// all three values can exist at the same time.

```

union Student
{
    int rollNo;
    float marks;
    char grade;
};
    
```

Largest element size is 4

All three members share the same memory location so only one member can be used at a time.

Differences

- Structure
1. Declared using 'struct'
 2. Each member has separate memory.
 3. All members can store values simultaneously.
 4. Size is approximately the sum of all members.
 5. Changing one member doesn't affect other mem.
 6. Used when all members are required.

- Union
- Declared using 'union'
 - All members share the same memory.
 - Only one member can store value.
 - Size is the size of largest element.
 - Changing one member can overwrite other value.
 - Used when at a time only one member is required.