



# Problem Solving With C - UE24CS151B

## Unions in C

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## PROBLEM SOLVING WITH C

### Unions in C

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- What is Union?
- Accessing Union Members
- Union vs Structure

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#### What is Union?

- A user defined data type which may hold members of different sizes and types
- Allow data members which are **mutually exclusive to share the same memory**
- Unions provide an efficient way of using the same memory location for multiple-purpose
  - At a given point in time, only one can exist
- The memory occupied will be large enough to hold the largest member of the union
  - **The size of a union is the size of the biggest component**
- All the **fields overlap** and they have the **same offset : 0**.
- Used while coding embedded devices

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#### Accessing the Union members

- **Syntax:**

```
union Tag      // union keyword is used
{
    data_type member1;    data_type member2;    ... data_type member n;
};      // ; is compulsory
```

- To access any member using the variable of union type,
  - use the **Member Access operator (.)**
- To access any member using the variable of pointer to union type,
  - use the **Arrow operator (->)**
- Coding Examples

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## Union Vs Structure

	STRUCTURE	UNION
Keyword	The keyword <b>struct</b> is used to define a structure	The keyword <b>union</b> is used to define a union.
Size	When a variable is associated with a structure, the compiler allocates the memory for each member. The size of structure is <b>greater than or equal to the sum of sizes of its members.</b>	when a variable is associated with a union, the compiler allocates the memory by considering the size of the largest memory. So, size of <b>union is equal to the size of largest member.</b>
Memory	Each member within a structure is assigned unique storage area of location.	Memory allocated is shared by individual members of union.
Value Altering	Altering the value of a member will not affect other members of the structure.	Altering the value of any of the member will alter other member values.
Accessing members	Individual member can be accessed at a time.	Only one member can be accessed at a time.
Initialization of Members	Several members of a structure can initialize at once.	Only the first member of a union can be initialized.



**THANK YOU**

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