



# Problem Solving With C - UE24CS151B

## Qualifiers in C

---

**Prof. Sindhu R Pai**

PSWC Theory Anchor, Feb-May, 2025

Department of Computer Science and Engineering

# PROBLEM SOLVING WITH C

## Qualifiers in C

---



1. Introduction
2. Size Qualifiers
3. Sign Qualifiers
4. Type Qualifiers
5. Applicability of Qualifiers to Basic Types

### Introduction

- Keywords which are applied to the data types resulting in Qualified type
- Applied to basic data types to alter or modify its sign or size
- Types of Qualifiers
  - **Size Qualifiers**
  - **Sign Qualifiers**
  - **Type qualifiers**

### Size Qualifiers

- Prefixed to **modify the size of a data type** allocated to a variable
- Supports two size qualifiers, **short** and **long**
- Rules Regarding size qualifier as per ANSI C standard
  - **short int <= int <=long int //** short int may also be abbreviated as short and long int as long. But, there is no abbreviation for long double.
- Coding Examples

### Sign Qualifiers

- Used to specify the signed nature of integer types
- It specifies whether a variable can hold a negative value or not
- Sign qualifiers are used with int and char types
- There are two types of Sign Qualifiers in C. **Signed** and **Unsigned**
- A **signed qualifier** specifies a variable which can hold both positive and negative integers
- An **unsigned qualifier** specifies a variable with only positive integers
- Coding Examples

### Type Qualifiers

- A way of expressing additional information about a value through the type system and ensuring correctness in the use of the data
- Type Qualifiers consists of two keywords
  - **const**
  - **volatile.**

### Type Qualifiers continued..

- **const:**
  - Once defined, their values cannot be changed.
  - Called as literals and their values are fixed.
  - **Syntax: `const data_type variable_name`**
- **volatile:**
  - Intended to prevent the compiler from applying any optimizations
  - Their values can be changed by code outside the scope of current code at any time
  - Also can be changed by any external device or hardware
  - **Syntax: `volatile data_type variable_name`**
- Coding Examples

# PROBLEM SOLVING WITH C

## Qualifiers in C



### Applicability of Qualifiers to Basic Types

No.	Data Type	Qualifier
1.	char	signed, unsigned
2.	int	short, long, signed, unsigned
3.	float	No qualifier
4.	double	long
5.	void	No qualifier





# THANK YOU

---

Department of Computer Science and Engineering

Dr. Shylaja S S, Director, CCBD & CDSAML, PESU  
Prof. Sindhu R Pai - [sindhurpai@pes.edu](mailto:sindhurpai@pes.edu)

**Ack:** Teaching Assistant - U Shivakumar