PROBLEM SOLVING WITH C
UE23CS151B

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Storage Classes in C

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Storage classes in C

- Introduction
- Automatic Variables
- External Variables
- Static Variables
- Register Variables
- Global Variables

Storage classes in C

Introduction

- To describe the features of a variable/function . Features include **scope(visibility) and life-time** to trace the existence of a particular variable/function during the runtime

- **List** of storage classes
  - **Automatic variables (auto)**
  - **External variables (extern)**
  - **Static variables(static)**
  - **Register variables (register)**
  - **Global Variables**

Automatic Variables

- A variable declared inside a function without any storage class specification is by default an automatic variable
- Created when a function is called and are destroyed automatically when the function execution is completed
- Also called as called local variables because they are local to a function. By default, assigned to undefined values
- Can be accessed outside their scope. But how ?
  - **By using Pointers**
- Coding Examples

External Variables

- To inform the compiler that the variable is declared somewhere else and make it available during linking
- Does not allocate storage for variables
- The default initial value of external integral type is 0 otherwise null.
- All functions are of type extern
- Coding Examples

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Static Variables

- Tells the compiler to persist the variable until the end of program.
- Initialized only once and remains into existence till the end of program
- Can either be **local or global depending upon the place of declaration**
  - Scope of local static variable remains inside the function in which it is defined but the life time of is throughout that program file
  - Global static variables remain restricted to scope of file in each they are declared and life time is also restricted to that file only
- All static variables are assigned 0 (zero) as default value
- Coding Examples

Register Variables

- Registers are faster than memory to access. So, the variables which are most frequently used in a program can be put in registers using **register** keyword
- The keyword register hints to compiler that a given variable can be put in a register. It's compiler's choice to put it in a register or not.
- Compilers themselves do optimizations and put the variables in register. If a free register is not available, these are then stored in the memory only
- If & operator is used with a register variable, then compiler may give an error or warning
- Coding Examples

Global variables- Additional Storage class

- The variables declared outside all function are called global variables. They are not limited to any function.
- Any function can access and modify global variables
- Automatically initialized to 0 at the time of declaration
- Coding Examples

THANK YOU

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