CPROGRAMING

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enum

- enum is user defined data type.
- Used to improve readability of C program (int constants, switch-case constants).
- enum color { RED, GREEN, BLUE, WHITE, YELLOW };
- enum color c1 = BLUE;
- enum constant values by default start from 0 and assigned sequentially.
- Programmer may choose to modify enum constant to any +ve, 0 or –ve value.
- Enum constants can be duplicated.
- enum color { RED=-2, GREEN, BLUE, WHITE, YELLOW=0 };
- Internally enum is integer, so size of enum = size of int.
- The enum constants are replaced by int values.

typedef

- typedef is used to create alias for any data-type.
- These aliases are helpful to
    - increase readability of the code.
    - port same code across multiple architecture/platforms.
    - simplify complex declarations.

- **typedef existing-data-type data-type-alias;**

- Examples:
    - typedef char int8_t;
    - typedef unsigned char uint8_t;
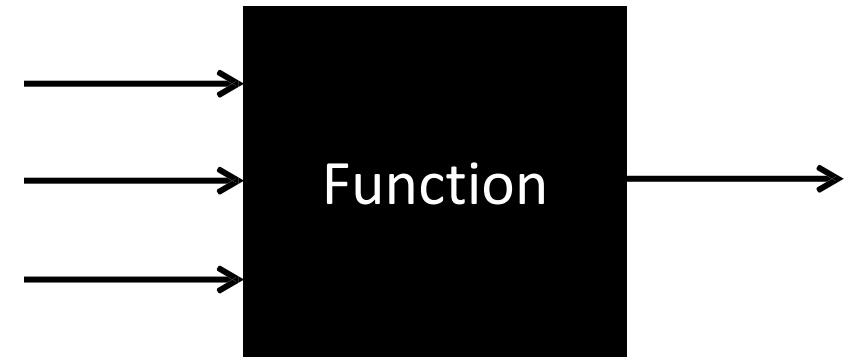- typedef unsigned int size_t; // declared in C library.

Functions

- C program is made up of one or more functions.
- C program contains at least one function i.e. main() function.
    - Execution of C program begins from main.
    - It returns exit status to the system.

- Advantages
    - Reusability
    - Readability
    - Maintainability

Function

- Function is set of instructions, that takes zero or more inputs (arguments) and return result (optional).
- Function is a black box.

Functions

- Each function has
  - Declaration

  - Definition

  - Call

- A function can be called one or more times.

- Arguments
  - Arguments passed to function → Actual arguments
  - Arguments collected in function → Formal arguments
  - Formal arguments must match with actual arguments

Examples:
1. addition()
2. print_line()
3. factorial()
4. combination()

Function execution

- When a function is called, function activation record/stack frame is created on stack of current process.

- When function is completed, function activation record is destroyed.

- Function activation record contains:
  - Local variables
  - Formal arguments
  - Return address

- Upon completion, next instruction after function call continue to execute.

Thank you!

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