Character Strings Constant Strings

- Sometimes you need to use a constant in a program

Circumference = 3.14159 * diameter;

- The constant 3.14159 represents the world-famous constant pi (tt)
- There are good reasons to use a symbolic constant instead of just typing in the number.
    - ➔ a name tells you more than a number does

Oxed = 0.015 * housevalue;
Owed = taxrate * housevalue;

- If you read through a long program, the meaning of the second version is plainer.
- Suppose you have used a constant in several places, and it becomes necessary to change its value .
    - ➔ You only need to alter the definition of the symbolic constant, rather than find and change every occurrence of the constant in the program.

#define

- The preprocessor lets you define constants

#define TAXRATE 0.015

- When your program is compiled, the value 0.015 will be substituted everywhere you have used TAXRATE
    - ➔ You cannot assign a value to it.
- Notice that the #define statement has a special syntax.
    - ➔ No equal sign used to assign the value 0.015 to TAXRATE
    - ➔ No semicolon
- #define statements can appear anywhere in a program.
    - ➔ No such thing as a local define
    - ➔ Most programmers group their #define statements at the beginning of the program (or inside an include file) where they can be quickly referenced and shared by more than one source file.
- The #define statement helps to make programs more portable
    - ➔ It might be necessary to use constant values that are related to the particular computer on which the program is running
- The #define statement can be used for character and string constants

  #define BEEP '\a'
  #define TEE 'T'
  #define ESC '\033'
  #define OOPS "Now you have done it!"

- The Second way to create symbolic constants.
    - ➔ Using the const keyword to convert a declaration for a variable into a declaration for a constant

Const int MONTHS = 12; // MONTHS a symbolic constant for 12

- Const makes MONTHS into a read-only value
    - ➔ You can display MONTHS and use it in calculations
    - ➔ You cannot alter the value of MONTHS
- Const is a newer approach and is more flexible than using #define
    - ➔ It lets you declare a type
    - ➔ It allows better control over which parts of a program can use the constant.
- C has yet a third way to create symbolic constants.
    - ➔ Enums

Conclusion.

- Initializing a char array and declaring it as constant is a good way of handling standard messages

  Const char message[] = “The end of the world is nigh.”;
- Because you declare message as const, its protected from being modified explicitly within the program,
    - ➔ Any attempt to do so will result in an error message is particularly useful if they are used in many places within a program.
        - ★ Prevents accidental modification of such constants in other parts of the program.