EECS168-Lab02

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Standard Input and Output in C++

- std::cin: used for taking input from the user.
- The input taken from the user should be stored in the variable.
  - Example:

```
int number=0;
std::cout<<"enter the number";
std::cin>>number;
```

- std::cout: used for displaying the output
  - Example: std::cout<<"the number entered is"<<number;

Variables in C++

- For numeric variable:
  - Integer types
    - for the integer numbers
    - Depends upon the range of number you want to use.
    - Types: short, int, long, long long
  - Floating types
    - For the decimal numbers
    - Types: float, double
- For character variable:
  - Char
    - Used when we want to enter a single alpha numeric characters and special symbols (a-z, A-Z, 0-9, %, $ etc.)
- For string variable: (covered in later labs)
  - Array of character
  - Should include library string
- Can use sizeof function to check the size of the variables.

Exercise 1: Hypotenuse

- Ask the user for base(b) and perpendicular(p) side of the right-angled triangle.
- Implement formula h = sqrt(pow(b,2)+pow(p,2)) to get the hypotenuse.
- Include library math.h or cmath for using sqrt and pow.

Exercise 2: Quadratic Equation

- Equation in the form of $ax^2 + bx + c = 0$
- Ask the user for the values of a, b , c
- Use the formula and solve for x. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- You will have to get two values of x.

Exercise 3: Temperature

- Ask the user for the temperature in Farhenheit.
- Use the formula T(°C) = (T(°F) - 32) × (5/9) to get the temperature in celsius.
- 5/9 in general gives the output 0 since it is integer division. So, use 5.0/9.0 to get the decimal output. This will prevent you from getting 0 as output.

Exercise 4: Casting character and ints

- The characters are stored as ASCII value.
- To print the ASCII value of the characters, characters should be casted to integer format.
- For example:

To print the ASCII value of A, (int)A should be done.

Characters	ASCII Value
A - Z	65 - 90
a - z	97 - 122
0 - 9	48 - 57
Special Symbol	0 - 47, 58 - 64, 91 - 96, 123 - 127

- Ask the user to enter the character and store it in character variable.

-Convert the character using (int)<variable_name>

Exercise 5: Soda Packer

- Ask the user for number of soda.
- Convert the sodas into fridge cubes, six packs and single sodas by integer division.
- 24 sodas=1 fridge cube
- 6 sodas=1 six packs
- 1 soda = 1 single soda

First find out the number of fridge cube and the remaining soda can be calculated. Then convert them to six packs. Again calculate the remaining soda and those are the single sodas.

% operator can be used to find the remaining soda.

For example: 6/4 gives 1 as quotient and 6%4 give 2 as remainder(remaining ones).

Exercise 6: Taco Stand

- Only for EECS 169.

Comments and formatting

- Please don’t forget to add comments at the top of the program as shown in wiki page.

- Formatting:
  - Maintain the indentation in the program
  - Give 'tab' before each program line inside curly braces to maintain the indentation.