PRI LAB 6

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FUNCTIONS

3 CALL BY VALUE V.S. CALL BY REFERENCE

- Call By Value:
  - Copy of data passed to function.
  - Changes to copy do not change original.
  - Prevent unwanted side effects.
- Call By Reference:
  - Function can directly access data.
  - Changes affect original.
  - Use & after data type in prototype.
  - Ex: void myFunction(int & data)

4 EXAMPLE 1 (CALL BY REFERENCE)

- Question:
  - Write a function that swaps two values and return them to the main function.

5 EXAMPLE 1 SOLUTION

```
#include <iostream>
using namespace std;

// pass by value
void swap1(int x, int y)
{
     int z = x;
     x = y;
     y = z;
}

// pass by reference
void swap2(int& x, int& y)
{
     int z = x;
     x = y;
     y = z;
}
```

EXAMPLE 1 SOLUTION

```
void main()
{
    int x, y;
    cin >> x >> y;
    swap1(x, y);
    cout << x << " " << y << endl;
    swap2(x, y);
    cout << x << " " << y << endl;
}
```

EXAMPLE 2 (TIME FUNCTIONS)

- Question:
  - Write a program that contains many functions:
    - Function to get the time (hour, minute, second and period).
    - Function to print the time.
    - Function to check if its mid night.
    - Function to validate the time.
    - Function to get the remaining Time.
    - Function to compare two times.

HOMEWORK'S

9 HOMEWORK 1

- Problem:
  - Write a program that make many operation's on fraction numbers.
  - The programs contains many functions:
    - Function to get fraction (numerator and denominator).
    - Function to print the fraction. Ex: numerator/denominator
    - Function to add two fraction and return a new fraction.
- Notes:
  - All variables are integers.

10 THE END