Assignment 1

Introduction to programming in C

Question 1

You have a certain number of 100 rupee notes, 10 rupee notes and 1 rupee notes with you. There is an item you want to buy whose price is given to you. Write a program to find if the item is affordable, that is the price of the item is less than or equal to the current money you have.

Input

Four non negative integers. The first input is an integer representing the number of 100 rupee notes. The second input is an integer representing the number of 10 rupee notes. The third input is an integer representing the number of 1 rupee notes. The fourth input is an integer representing the price of the item.

Output

You have to output 1 if the item is affordable. You have to output 0 if the item is not affordable.

Solution

```c
#include <stdio.h>
int main()
{
  int hundreds,tens,ones;
  int price;
  int money;

  scanf("%d",&hundreds);
  scanf("%d",&tens);
  scanf("%d",&ones);
  scanf("%d",&price);

  money = hundreds*100 + tens*10 + ones;

  if( price <= money){
    printf("1");
  }
  else{
```

```
    printf("0");
  }

  return 0;
}
```

Question 2

Given three distinct integers a b and c, write a C program to find the second largest number among them.

Input
Three distinct integers a b c. The first input is the integer a. The second input is the integer b. The third input is is the integer c.

Output
The second largest among a, b and c

Solution

```
#include <stdio.h>

int main() {
    int a, b, c;

    // Read a b and c
    scanf("%d %d %d", &a, &b, &c);

    // Variable to store second largest number
    int secondLargest;

  // a is second largest if b < a < c or c < a < b
    if ((b < a && a < c) || (c < a && a < b))
        secondLargest = a;

  // b is second largest if a < b < c or c < b < a
    else if ((a < b && b < c) || (c < b && b < a))
        secondLargest = b;

  // Otherwise c will be the second largest
  else
        secondLargest = c;

    // Output the result
    printf("%d",secondLargest);

    return 0;
}
```

Question 3

Given the coefficients of a pair of linear equations,

$$a_1x + b_1y = c_1$$
$$a_2x + b_2y = c_2$$

Find the solutions to x and y

Input

Input consists two lines.
The first line contains coefficients of first equation, $a_1b_1c_1$ in that order
The second line contains coefficients of second equation, $a_2b_2c_2$ in that order

Output

The solutions to x and y.
Note : You can assume that both x and y will always be integers. You can also assume that the solution is unique.

Solution

```c
#include <stdio.h>

int main() {
    int a1, b1, c1;
    int a2, b2, c2;
    int x,y;

    // Input the first equation
    scanf("%d %d %d", &a1, &b1, &c1);

    // Input the second equation
    scanf("%d %d %d", &a2, &b2, &c2);

   // Solve using guassian elimination
   x = (c1*b2-c2*b1)/(a1*b2-a2*b1);
   y = (a2*c1-a1*c2)/(a2*b1-a1*b2);

    // Output the result
    printf("%d %d",x,y);

    return 0;
}
```