Name: KEY   **Id#**

ICS 103, Term 132

Computer Programming in C
Quiz# 5

Date: Sunday, May 11, 2014

Q1. Determine the output of each of the following programs:

| ```c
#include <stdio.h>
int test(int a[],  int t, int n)
{
  int i=0, j=-1, k=0;
  while (!k && i < n) {
    if (a[i] == t)k = 1;
    else i++;
  }
  if (k) j=i;
  return j;
}
int main(void)
{
  int x[]={10, 5, 15, 20, 1, 20};
  printf("%d\n", test(x, 20, 6));
  return 0;
}
``` | The program will search for the target value 20 in the array and will return the index where it is first found. Thus, it will print:<br>3 |
| ```c
#include <stdio.h>
int main(void)
{
  int x[]={2, 5, 3, 4, 1};
  int i, j, k;
  for (i=0; i<4; i++) {
      for (j=i+1; j<5; j++)
        if (x[i] > x[j])
        { k=x[i]; x[i]=x[j]; x[j]=k;}
  }

  for (i=0; i<5; i++)
      printf("%d ", x[i]);

  return 0;
}
``` | The program will sort the array in ascending order. Thus, it will print:<br>1 2 3 4 5 |

Q2. Write a C program that does the following:

    i.   Declares a two-dimensional array of integers that has 4 rows and 3 columns and initializes it with the following set of values:

```
 1    2    3
 4    5    6
 7    8    9
10  11   12
```

    ii.   Asks the user to enter two row numbers and reads them.
    iii.   Writes a function that receives a two dimensional array of integers along with its dimensions and two row numbers and exchanges the contents of the two given rows. Then, uses this function to exchange the two rows entered by the user.
    iv.   Prints the array after the exchange of the two rows.

A sample execution of the program is given below:

```
Enter the two rows to exchange: 0 2
Array after exchanging row 0 & row 2:
  7   8   9
  4   5   6
  1   2   3
 10  11  12
Press any key to continue . . . ▄
```

```c
#include <stdio.h>
#include <stdlib.h>
void xchgr(int a[][3], int m, int r1, int r2){
    int t;
        for (int j=0;j<m;j++){
            t=a[r1][j];
            a[r1][j]=a[r2][j];
            a[r2][j]=t;
        }
}
int main ()
{
  int a[4][3]={{1,2,3}, {4,5,6}, {7,8,9}, {10,11,12}};
  int r1, r2;

  printf("Enter the two rows to exchange: ");
  scanf("%d %d",&r1,&r2);
  xchgr(a,3,r1,r2);
  printf("Array after exchanging row %d & row %d:\n",r1, r2);
  for (int i=0;i<4;i++){
     for (int j=0;j<3;j++)
        printf("%3d ",a[i][j]);
     printf("\n");
  }
  system("pause");
  return 0;
}
```