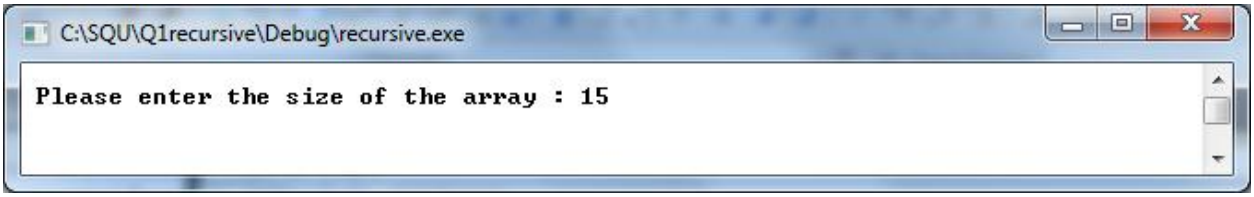
Sultan Qaboos University
Department of Computer Science
COMP2102: Problem Solving and Programming, Spring 2013
Assignment 4-Due Date: 16/05/13

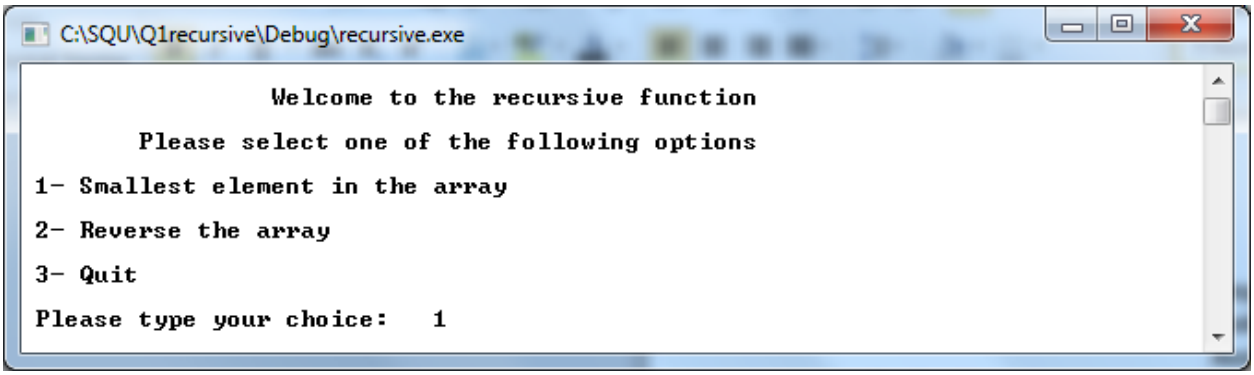
1- In this assignment you are going to develop recursive functions**.**

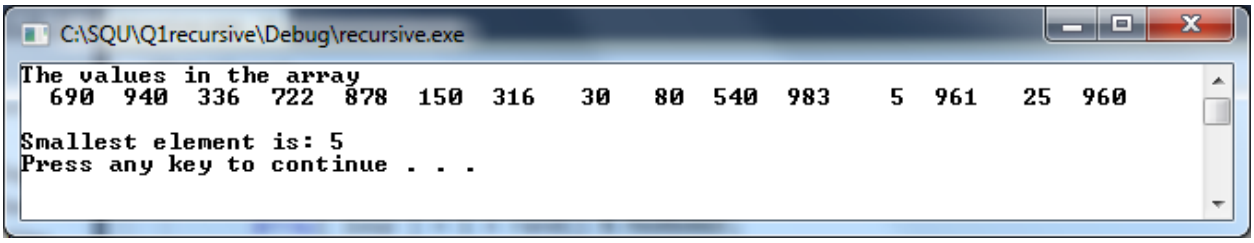
a- Write a recursive function **recursiveMinimum** that receives an array of integers and returns **the smallest element in the array**. Assume that the function has the following prototype statement:
int recursiveMinimum(const int array[], int low, int high)

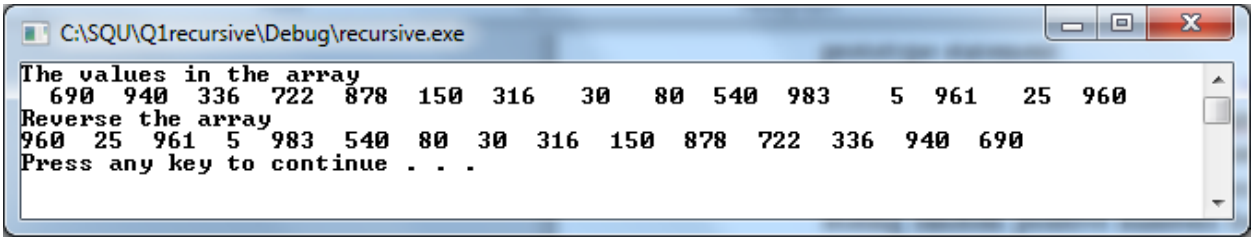
b- Write a recursive function **recursiveReverse** with suitable parameters that receives an array of integers and **reverses the array.**

c- Write a C++ program that creates and manipulates a dynamic one-dimensional array storing random positive numbers between 1 and 999.The user must enter the size of the array. Test your recursive function **recursiveMinimum** to return **the smallest element in the array**. Also test your function **recursiveReverse** to return the **reverse of the array**.









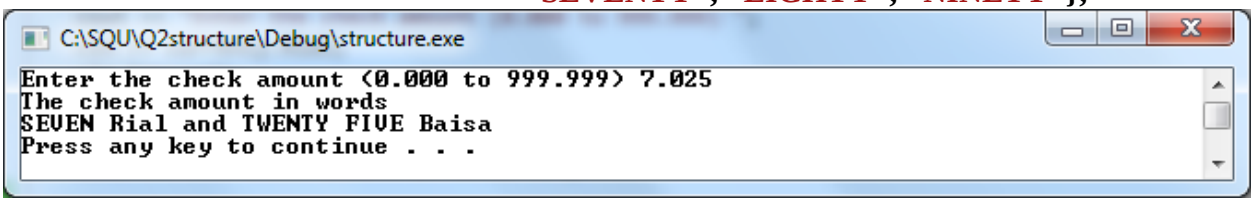
2- Write a C++ program that will make use of the **Currency** structure, which contains the following data items:

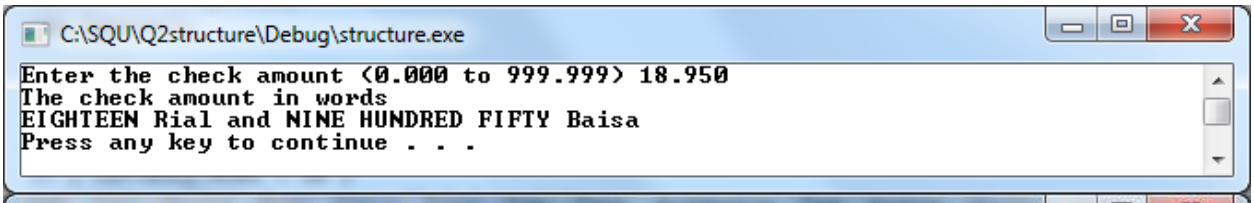
```
struct Currency
{       char *units;
        char *tens1;
        char *hundreds;
        char *tens;
        int Rial;
        int Baisa;
};
```

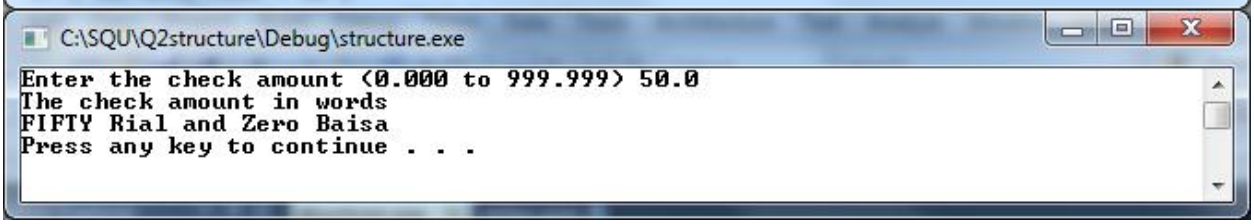
The user must enter the positive integer numbers between 0.000 and 999.999 as Omani Rial Currency (OMR). Then check the amount and print in words as the Figure below.

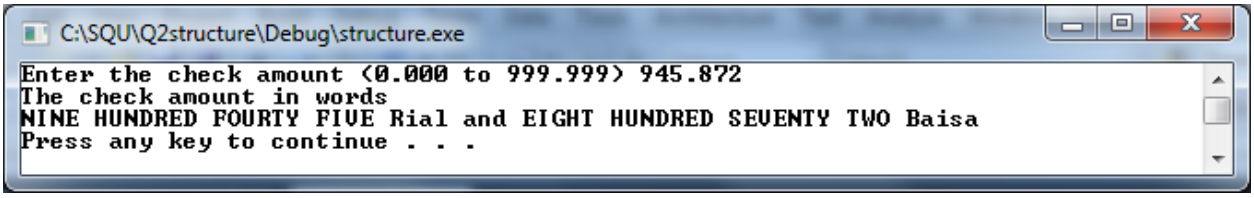
Hint: Use the following array declarations:-

```
const int size = 10;
const char *units[ size ] = { "Zero", "ONE", "TWO", "THREE","FOUR",
                              "FIVE", "SIX","SEVEN", "EIGHT", "NINE"};
const char *tens1[ size ] = { "Zero", "ELEVEN", "TWELVE","THIRTEEN",
                              "FOURTEEN","FIFTEEN","SIXTEEN",
                              "SEVENTEEN", "EIGHTEEN","NINETEEN"};
const char *hundreds = "HUNDRED";
 const char *tens[ size ] = { "Zero", "TEN", "TWENTY", "THIRTY",
                              "FOURTY",   "FIFTY", "SIXTY",
                              "SEVENTY", "EIGHTY", "NINETY"};
```









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Student ID: _____ Student Name: _____ Section: _____

Submission Policy and Grade Distribution

Task	Marks	Comment
Proper style (indentation, naming, spacing, comments)	5	
Appropriate use of function	10	
Correct function main logic and processing	20	
Correct output and result	5	
Program free of compilation errors and warnings	5	
Program free of run-time errors	5	
Total	50	

- **Name your assignment folder as A4_XXXXXX, where XXXXXX is your university ID.**
- **Name your programs as A4_part1.cpp, A4_part2.cpp then save in your assignment folder.**
- **Compress and upload your assignment folder to Assignment 4 link in Moodle.**