Name:___________________ Roll No:________________

National University of Computer and Emerging Sciences, Lahore Campus

Programming Fundamentals

QUIZ 5 (Version B)

Section: BSE-1B **Date:** 30th November 2022

Q1: Write the Output of the following code and Identify error if any:

```
#include <iostream>
using namespace std;
void modifyString(string& s, string& s1, string& s2,int length1,int length2)
{
    string ans = "";
    for (int i = 0; i < length1; i++) {
        int k = 0;
        if (s[i] == s1[k] && i + length2 <= length1) {
            int j;
            for (j = i; j < i + length2; j++) {

                if (s[j] != s1[k]) {
                    break;
                }
                else {
                    k = k + 1;
                }
            }
            if (j == i + length2) {
                ans += s2;
                i = j - 1;
            }
            else {
                ans+=s[i];
                cout << ans << endl;
            }
        }
        else {
            ans+= s[i];
            cout << ans << endl;
        }
    }
    cout << ans;
}

int main()
{
    string S = "sforgeeksgeek";
    string S1 = "ek";
    string S2 = "pk";
    modifyString(S,S1,S2,13,2);
    return 0;
}
```

Output:

Q2: Write the Output of the following code and Identify error if any:

```
#include <iostream>
using namespace std;
void rearrangeFun(int nums[],int temp[], int n)
{
    int small_num = 0, large_num = n - 1;
    int result = true;

    for (int i = 0; i < n; i++)
    {
        if (result)
        {
            temp[i] = nums[large_num--];
            cout << temp[i] << endl;
        }
        else {
            temp[i] = nums[small_num++];
            //cout << temp[i] << endl;
        }
        result = !result;
    }
    for (int i = 0; i < n; i++)
        nums[i] = temp[i];
}

int main()
```

```
{
   int nums[] = { 0, 1, 2, 3, 5, 6, 7, 9, 11 };
   int temp[9];
   int n = sizeof(nums) / sizeof(nums[0]);
   cout << "Original array: ";
   for (int i = 0; i < n; i++)
      cout << nums[i] << " " << endl;
   rearrangeFun(nums,temp, n);
   for (int i = 0; i < n; i++)
      cout << nums[i] << " ";
   return 0;

}
```

Output:

Q3: Write the Output of the following code and Identify error if any:

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

void swap(int &x, int &y)
{
   int temp = x;
   x = y;
   y = temp;
}




void segregate(int nums[], int size)
{
    int left_num = 0, right_num = size - 1;
    while (left_num < right_num)
    {
        while (nums[left_num] % 2 == 0 && left_num < right_num)
            left_num++;

        while (nums[right_num] % 2 == 1 && left_num < right_num)
            right_num--;

        if (left_num < right_num)
        {
            swap(nums[left_num], nums[right_num]);
            left_num++;
            right_num--;
        }
    }
}
int main()
{
    int nums[] = { 0, 1, 3, 4, 5, 7, 8, 11 };
    int n = sizeof(nums) / sizeof(nums[0]);
    cout << "Original array: ";
    for (int i = 0; i < n; i++)
        cout << nums[i] << " ";
    segregate(nums, n);
    printf("\nArray after divided: ");
    for (int i = 0; i < n; i++)
        cout << nums[i] << " ";
    return 0;
}
```

Output:

Q4: Write the Output of the following code and Identify error if any: (BONUS)

```
#include <iostream>
using namespace std;
void Manipulation(int firstMatrix[][3], int secondMatrix[][1], int multResult[][1], int rowFirst, int columnFirst, int
rowSecond, int columnSecond);
void display(int mult[][1], int rowFirst, int columnSecond);
int main()
{
        int mult[2][1], rowFirst=2, columnFirst=3, rowSecond=2, columnSecond=1, i, j, k;
        int firstMatrix[2][3] = { {2,3,4},{2,4,5}};
        int secondMatrix[3][1] = { {2},{2},{1} };
        Manipulation(firstMatrix, secondMatrix, mult, rowFirst, columnFirst, rowSecond, columnSecond);
        display(mult, rowFirst, columnSecond);
        return 0;
}
void Manipulation(int firstMatrix[][3], int secondMatrix[][1], int mult[][1], int rowFirst, int columnFirst, int rowSecond, int
columnSecond)
{
        int i, j, k;
        for (i = 0; i < rowFirst; ++i)
        {
                for (j = 0; j < columnSecond; ++j)
                        mult[i][j] = 0;

        }
        for (i = 0; i < rowFirst; ++i)
        {
                for (j = 0; j < columnSecond; ++j)
                {
                        for (k = 0; k < columnFirst; ++k)
                        {
                                mult[i][j] += firstMatrix[i][k] * secondMatrix[k][j];
                                cout << mult[i][j] << endl;
                        }
                }
        }
}
void display(int mult[][1], int rowFirst, int columnSecond){
        int i, j;
        cout << "Output Matrix:" << endl;

        for (i = 0; i < rowFirst; ++i)  {

                for (j = 0; j < columnSecond; ++j)
                {
                        cout << mult[i][j] << " ";
                        if (j == columnSecond - 1)
                                cout << endl << endl;
                }
        }
}
```

Q5: Write the Output of the following code and Identify error if any:

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```
#include <iostream>
using namespace std;
struct MyBox
{
   int length, breadth, height;
};
void dimension(MyBox M)
{
   cout << M.length << "x" << M.breadth << "x";
   cout << M.height << endl;
}
int main()
{
   MyBox B1 = { 3, 3, 5 }, B2, B3;
   ++B1.height;
   dimension(B1);
   B3 = B1;
   ++B3.length;
   B3.breadth++;
   dimension(B3);
   B2 = B3;
   B2.height += 5;
   B2.length--;
   dimension(B2);
   return 0;
}
```

Output: