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CS 1011 – Programming Laboratory
Lab Sheet 05

Write short answers to the following questions:

01. Find any errors in the following function definition:

```
void myfunction(int x,int y){  
    cout<<x*y;  
    return(x*y) ;  
}
```

02. Find any errors in the following function definition:

```
void myfunction(int x,y){  
    return(x*y) ;  
}
```

03. Find any errors in the following function prototypes:

- a. int sum(int x,y);
- b. int sum(int x,int y)
- c. int sum(int x,void y);

04. What would be the output from the following C++ program when run using 3 4 as input data?

```
#include<iostream>  
#include<conio.h>  
using namespace std;  
int subtr(int x,int y);  
int main(){  
    int x,y,res;  
    cout<<"Enter x and y separated by space:";  
    cin>>x>>y;  
    res=subtr(x,y);  
    cout<<"Result="<<res;  
  
    getch();  
    return 0;  
}  
  
int subtr(int x,int y){  
    return(x-y);  
}
```

05. What would be the output from the following C++ program when run using 2 4 1 as input data?

```
#include<iostream>
#include<conio.h>
using namespace std;
int max3(int x,int y,int z);
int main() {
    int x,y,z,max;
    cout<<"Enter x, y and z separated by space:";
    cin>>x>>y>>z;
    max=max3(x,y,z);
    cout<<"The max value is "<<max;

    getch();
    return 0;
}
int max3(int x,int y,int z){
    if(x>y)
        if(x>z) return x;
        else return z;
    else if(y>z) return y;
    else return z;
}
```

06. What would be the output from the following C++ program when run
- using 3 2 as input data?
 - using 3 -2 as input data?

```
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>
double mypower(int base,int pow);
int main() {
    int b,p;
    double res;
    cout<<"Enter base value and its power separated by space:";
    cin>>b>>p;
    res=mypower(b,p);
    cout<<"Result="<<res;

    getch();
    return 0;
}
```

```
double mypower(int base,int pow){
    if(pow>=0){ //positive power
        if(pow==0) return 1;
        else if(pow==1) return base;
        else return (base*mypower(base,pow-1));
    }
    else{ //negative power
        if(pow==-1) return(1/(double)base);
        else return((1/(double)base)*mypower(base,pow+1));
    }
}
```

Write C++ programs for the following questions:

07. Write a value returning function that receives a character and returns true if the character is a vowel and false otherwise. For this example, vowels include the characters, 'a', 'e', 'i', 'o', and 'u'.
08. Write a function named "sum_from_to" that takes two integer arguments, call them "first" and "last", and returns as its value the sum of all the integers between first and last inclusive. Thus, for example,

```
cout<< sum_from_to(4,7) << endl; // will print 22 because
4+5+6+7=22
cout<< sum_from_to(-3,1) << endl;
//will print -5 because (-3) + (-2) + (-1) + 0 + 1 = -5
cout << sum_from_to(7,4) << endl; // will
print 22 because 7+6+5+4 = 22
cout << sum_from_to(9,9) <<
endl; // will print 9
```

09. Write a function named "g_c_d" that takes two *positive* integer arguments and returns as its value the greatest common divisor of those two integers. If the function is passed an argument that is not positive (i.e., greater than zero), then the function should return the value 0 as a sentinel value to indicate that an error occurred. Thus, for example,

```
cout << g_c_d(40,50) << endl; // will print 10
cout << g_c_d(256,625) << endl; // will print 1
cout << g_c_d(42,6) << endl; // will print 6
cout << g_c_d(0,32) << endl; // will print 0 (even though
32 is the g.c.d.)
cout << g_c_d(10,-6) << endl; // will print 0 (even
though 2 is the g.c.d.)
```