LAB ASSIGNMENT-3

```
// Q1. WAP to find area of a_025 circle, a_025 rectangle and
a_025 triangle, using concept of
//function overloading.
#include <iostream>
#include <math.h>
using namespace std;

void area(double r_025)
{

  double area = 3.14 * r_025 * r_025;
  cout << "\narea of circle is " << area << "sq.unit\n";
}
void area(double l_025, double b_025)
{

  double area = l_025 * b_025;
  cout << "\narea of rect is " << area << "sq.unit\n";
}
void area(double a_025, double b_025, double c_025)
{
  double s = (a_025 + b_025 + c_025) / 2;
  double area = sqrt(s * (s - a_025) * (s - b_025) * (s - c_0
25));
  cout << "\narea of triangle is " << area << "sq.unit\n";
}

int main()
{
  double r_025, a_025, b_025, c_025, l_025,br_025;
  int n_025;

  cout << "\npress 1 to calculate the area of circle"
       << "\npress 2 to calculate the area of reactangle"
       << "\npress 3 to calculate the area of triangle";
  cin >> n_025;
  switch (n_025)
  {

  case 1:

    cout << "enter the value of radius";
    cin >> r_025;
    area(r_025);
```

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```
    break;

  case 2:
    cout << "enter the length and breath";
    cin >> l_025 >>br_025;
    area(l_025,br_025);
    break;
  case 3:
    cout << "enter the length of the 3 sides";
    cin>>a_025>>b_025>>c_025;
    area(a_025, b_025, c_025);

  default:
    break;
  }

  return 0;
}
```

OUTPUT-Q1

```
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PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q1_areaofcircle_tria.cpp -o q1_areaofcircle_tria } ; if ($?) { .\q1_areaofcircle_tria }

press 1 to calculate the area of circle
press 2 to calculate the area of reactangle
press 3 to calculate the area of triangle1
enter the value of radius23

area of circle is 1661.06sq.unit
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q1_areaofcircle_tria.cpp -o q1_areaofcircle_tria } ; if ($?) { .\q1_areaofcircle_tria }

press 1 to calculate the area of circle
press 2 to calculate the area of reactangle
press 3 to calculate the area of triangle2
enter the length and breath12
32

area of rect is 384sq.unit
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q1_areaofcircle_tria.cpp -o q1_areaofcircle_tria } ; if ($?) { .\q1_areaofcircle_tria }

press 1 to calculate the area of circle
press 2 to calculate the area of reactangle
press 3 to calculate the area of triangle3
enter the length of the 3 sides21
21
32

area of triangle is 217.624sq.unit
PS D:\my codes\OOPS\lab3 function overloading&default arg>
```

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```
//Q2.WAP to find volume of a_025 sphere, a_025 cylinder and a
_025 cuboid, using function
//overloading.
#include <iostream>
#include <math.h>
```

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```
using namespace std;

void volume(double r_025)
{

   double volume = 4 / 3.0 * 3.14 * r_025 * r_025 * r_025;
   cout << "\nvolume of sphere is " << volume << " sq.unit\n"
;
}
void volume(double r_025, double h_025)
{

   double volume = 3.14 * r_025 * r_025 * h_025;
   cout << "\nvolume of cylinder is " << volume << " sq.unit\
n";
}
void volume(double a_025, double b_025, double c_025)
{
   double s = (a_025 + b_025 + c_025) / 2;
   double volume = sqrt(s * (s - a_025) * (s - b_025) * (s -
c_025));
   cout << "\nvolume of triangle is " << volume << " sq.unit\
n";
}

int main()
{

   double r_025, a_025, b_025, c_025, h_025;
   int n_025;

   cout << "\npress 1 to calculate the volume  of sphere"
        << "\npress 2 to calculate the volume  of cylinder"
        << "\npress 3 to calculate the volume  of cuboid\n";
   cin >> n_025;
   switch (n_025)
   {

   case 1:

      cout << "enter the value of radius of sphere";
      cin >> r_025;
      volume(r_025);
      break;

   case 2:
```

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```
        cout << "enter the value of radius and height of cylind
er ";
        cin >> r_025 >> h_025;
        volume(r_025, h_025);
        break;
    case 3:
        cout << "enter the value of 3 sides of triangle ";
        cin >> a_025 >> b_025 >> c_025;
        volume(a_025, b_025, c_025);

    default:
        break;
    }
    return 0;
}
```

OUTPUT-Q2

```
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PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q2_volum_funcnoverloa.cpp -o q2_volum_funcnoverloa } ; if ($?) { .\q2_volum_funcnoverloa }

press 1 to calculate the volume  of sphere
press 2 to calculate the volume  of cylinder
press 3 to calculate the volume  of cuboid
1
enter the value of radius of sphere23

volume of sphere is 50939.2 sq.unit
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q2_volum_funcnoverloa.cpp -o q2_volum_funcnoverloa } ; if ($?) { .\q2_volum_funcnoverloa }

press 1 to calculate the volume  of sphere
press 2 to calculate the volume  of cylinder
press 3 to calculate the volume  of cuboid
3
enter the value of 3 sides of triangle 12
23
21

volume of triangle is 125.22 sq.unit
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q2_volum_funcnoverloa.cpp -o q2_volum_funcnoverloa } ; if ($?) { .\q2_volum_funcnoverloa }

press 1 to calculate the volume  of sphere
press 2 to calculate the volume  of cylinder
press 3 to calculate the volume  of cuboid
2
enter the value of radius and height of cylinder 12
32

volume of cylinder is 14469.1 sq.unit
PS D:\my codes\OOPS\lab3 function overloading&default arg>
```

/* Q3.WAP which displays a given character, n_025 number of t
imes, using a
function. When the n_025 value is not provided, it should pri
nt the given
character 80 times. When both the character and n_025 value i
s not provided, it
should print '*' character 80 times.
[Write the above program in two ways:-
-using function overloading.

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```
-using default arguments.]

*/
#include <iostream>
using namespace std;

/*void charac(char c_025 = '*', int n_025 = 80)
{

    for (int i = 0; i < n_025; i++)
    {
        cout << i + 1 << "--->" << c_025 << "\n";
    }
}*/

void print(int t_025)
{
    for (int i = 0; i < t_025; i++)
    {
        cout << i + 1 << "--->" << '*' << "\n";
    }
}
void print(char c_025, int n_025)
{
    for (int i = 0; i < n_025; i++)
    {
        cout << i + 1 << "--->" << c_025 << "\n";
    }
}
void print(char c_025)
{
    for (int i = 0; i < 80; i++)
    {
        cout << i + 1 << "--->" << c_025 << "\n";
    }
}

int main()
{
    int n_025;
    cout << "what do you have ??\n"
         << "----------------------------";
    cout << "\nif you have character then press 1"
         << "\n or if you have no. then press 2"
         << "\nand if you have nothing then press 3";
    cin >> n_025;
```

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```
    switch (n_025)
    {
    case 1:
        char c_025;
        cout << "enter the character";
        cin >> c_025;
        print(c_025);
        break;
    case 2:
        int t_025;
        cout << "enter the number";
        cin >> t_025;
        print(t_025);
        break;

    case 3:
        print('*', 80);
        break;

    default:
        break;
    }
    //charac();

    return 0;
}
```

OUTPUT-Q3

```
80--->7
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q3_character_n_no_oftimes.cpp -o q3_character_n_no_oftimes } ; if ($?) { .\q3_character_n_no_oftimes }
what do you have ??
---------------------------
if you have character then press 1
 or if you have no. then press 2
and if you have nothing then press 32
enter the number13
1--->*
2--->*
3--->*
4--->*
5--->*
6--->*
7--->*
8--->*
9--->*
10--->*
11--->*
12--->*
13--->*
PS D:\my codes\OOPS\lab3 function overloading&default arg>
```

```cpp
// Q4.WAP to find square and cube of a number using inline fu
nction.
//Inline int sq(int I) { return I*I;}

#include <iostream>
using namespace std;

inline void sqr(int t_025)
{

    cout << "sqr of the required no. is " << t_025 * t_025;
}
inline void cube(int t_025)
{

    cout << "cube of the required no. is " << t_025 * t_025 *
 t_025;
}
int main()
{
    int t_025;
    cout << "presss 1 to caluate sqr\n"
```

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```
          << "press 2 to calculate cube\n";
    cin >> t_025;
    switch (t_025)
    {
    case 1:

    {
        int n025;
        cout << "enter the no.";
        cin >> n025;
        sqr(n025);
        break;
    }
    case 2:
    {
        int n025;
        cout << "enter the no.";
        cin >> n025;
        cube(n025);
        break;
    }
    default:
        break;
    }

    return 0;
}
```

OUTPUT-Q4

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```
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PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q4_sqr_inline_func.cpp -o q4_sqr_inline_func } ; if ($?) { .\q4_sqr_inline_func }
presss 1 to caluate sqr
press 2 to calculate cube
1
enter the no.23
sqr of the required no. is 529
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q4_sqr_inline_func.cpp -o q4_sqr_inline_func } ; if ($?) { .\q4_sqr_inline_func }
presss 1 to caluate sqr
press 2 to calculate cube
2
enter the no.5
cube of the required no. is 125
PS D:\my codes\OOPS\lab3 function overloading&default arg>
```

```
/*Q5. WAP to increment the value of an argument given to func
tion USING
INLINE function.
Inline int incr(int I) {
return ++i; }*/
#include<iostream>
using namespace std;

inline void increm(int *n025)
{
    cout<<"incremented value is "<< ++*n025;

}


int main()
{int n025;
    cout<<"enter the no. you want to be incremented ";
 cin>>n025;
 increm(&n025);

    return 0;
}
```

OUTPUT-Q5

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```
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q5_increment_the_value.cpp -o q5_increment_the_value } ; if ($?) { .\q5_increment_the_value }
enter the no. you want to be incremented 12
incremented value is 13
PS D:\my codes\OOPS\lab3 function overloading&default arg>
```

```
/*Q6.Write a_025 program to create a_025 class called COMPLEX
 and implement the following
overloading functions ADD that return a_025 COMPLEX number.
a_025) Complex ADD (int a_025 , complex s2){
Complex temp;
Temp.real_025=s2.real_025+a_025;
Temp.img_025;
=s2.img_025;
;
Return temp;
}
- where a_025 is an integer (real_025 part) and s2 is a_025 c
omplex number.
b) complex ADD (complex s1, complex s2) - where s1 and s2 are
 complex numbers.*/

#include <iostream>
using namespace std;
class Complex
{
    int real_025;
    int img_025;
    ;

public:
    void input()
    {
        cin >> real_025 >> img_025;
        ;
    }
    Complex ADD(int a_025, Complex s2)
    {
        Complex temp;
```

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```
        temp.real_025 = s2.real_025 + a_025;
        temp.img_025 = s2.img_025;
        ;
        return temp;
    }
    Complex ADD(Complex s1, Complex s2)
    {
        Complex temp;
        temp.real_025 = s2.real_025 + s1.real_025;
        temp.img_025 = s2.img_025 + s1.img_025;
        ;
        return temp;
    }
    void display()
    {

        cout << "\nThe added value is " << real_025 << "+i" <
< img_025;
        ;
    }
};
int main()
{
    int n_025, a_025;
    Complex s[2], c_025;
    for (int i = 0; i < 2; i++)
    {
        cout << "enter" << i + 1 << " complex no.";

        s[i].input();
    }
    cout << "\npress 1 if you want to add one real no. to the
 1st complex no."
         << "\npress 2 if you want to add one real no. to the
 2nd complex no."
         << "\npress 3 if you want to add both the complex no
.";
    cin >> n_025;

    switch (n_025)
    {
    case 1:

        cout << "enter a_025 real  number";
        cin >> a_025;
        c_025 = c_025.ADD(a_025, s[0]);
```

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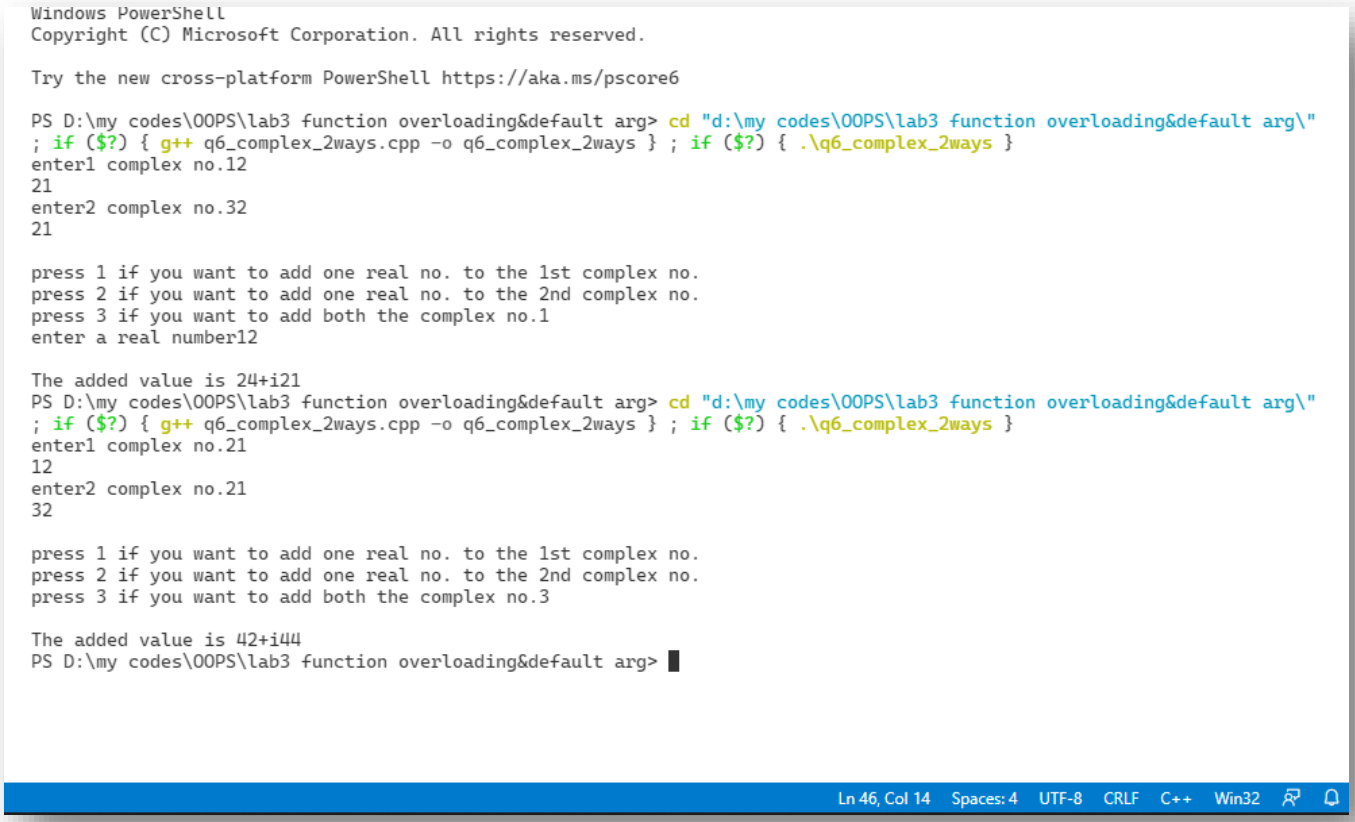
```
        c_025.display();

        break;
    case 2:

        cout << "enter a_025 real number";
        cin >> a_025;
        c_025 = c_025.ADD(a_025, s[1]);
        c_025.display();

        break;

    case 3:

        c_025 = c_025.ADD(s[0], s[1]);
        c_025.display();

    default:
        break;
    }
    return 0;
}
```

OUTPUT-Q6



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```
/* Q7. Write a_025 program to find the summation of three num
bers by using one function
only with function name SUM having three arguments. If at run
 time one argument is
given to the function SUM, then second and third argument wil
l be assumed by
default as 10 and 20 respectively. If two arguments are given
 at run time, then third
argument will be assumed as 20. Use function with default arg
ument concepts.*/
#include <iostream>
using namespace std;
void SUM(int a_025, int b_025 = 10, int c_025 = 20)
{

    cout << "sum of 3 no. is " << a_025 + b_025 + c_025;
}
int main()
{
    int n;
    int a_025, b_025, c_025;

    cout << "press 1 if you have 1 no.s\n"
         << "press 2 if u have 2 no.s\n"
         << "press 3 if u have 3 no.s\n";
    cin >> n;
    switch (n)
    {
    case 1:
       int a_025;
       cout << "enter 1 no.";
       cin >> a_025;
       SUM(a_025);
       break;
    case 2:
       cout << "enter 2 no.";
       cin >> a_025 >> b_025;
       SUM(a_025, b_025);
       break;
    case 3:
        cout << "enter 3 no.";
        cin >> a_025 >> b_025>>c_025;
        SUM(a_025, b_025,c_025);
        break;

    default:
```

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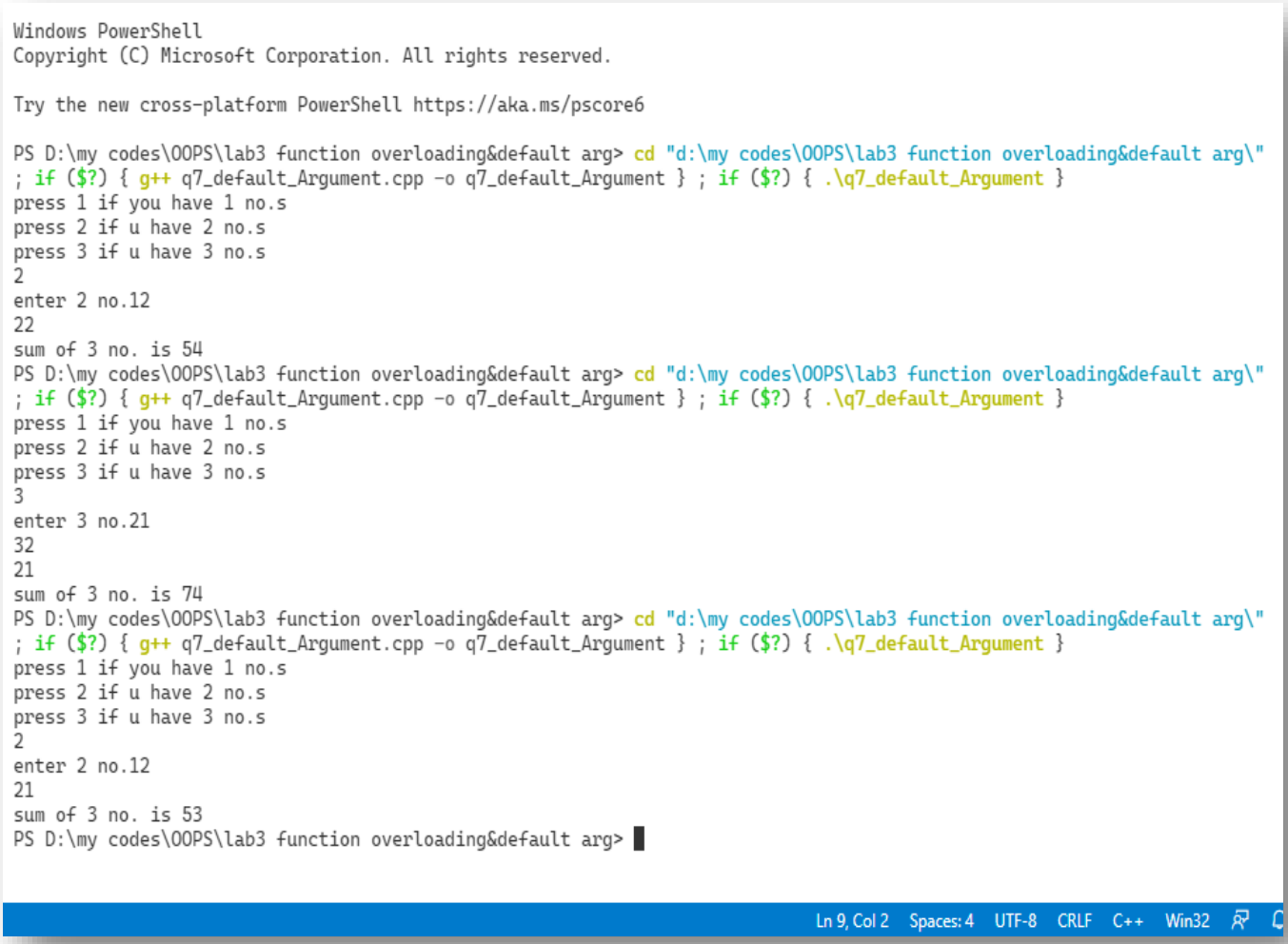
```
        break;
    }

    return 0;
}
```

OUTPUT-Q7




```
/*Q8.Write a_025 program to demonstrate the concept of call-
by-value, call-by-reference &amp;
call-
by address by taking swapping of two numbers as an example.*/
#include <iostream>
using namespace std;

void cbyvalue(int a_025, int b_025)
{

    int temp_025 = a_025;
```

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```
    a_025 = b_025;
    b_025 = temp_025;
}

void cbyaddress(int &a_025, int &b_025)
{

    int temp_025 = a_025;
    a_025 = b_025;
    b_025 = temp_025;
}
void cbyrefrence(int *a_025, int *b_025)
{
    int *temp_025;
    *temp_025 = *a_025;
    *a_025 = *b_025;
    *b_025 = *temp_025;
}
int main()
{
    int a_025, b_025, n_025;
    cout << "press 1 for call by value"
         << "\npress 2 for call by address"
         << "\npress 3 for call by refrence\n";
    cin >> n_025;
    switch (n_025)
    {
    case 1:
        cout << "enter 2 no.s\n";
        cin >> a_025 >> b_025;
        cbyvalue(a_025, b_025); //swaping doest haapen
        cout << "swap values are " << a_025 << '&' << b_025;
        break;
    case 2:
        cout << "enter 2 no.s\n";
        cin >> a_025 >> b_025;
        cbyaddress(a_025, b_025); //swap happens
        cout << "swap values are " << a_025 << '&' << b_025;

        break;
    case 3:
        cout << "enter 2 no.s\n";
        cin >> a_025 >> b_025;
        cbyrefrence(&a_025, &b_025); //swap happens
        cout << "swap values are " << a_025 << '&' << b_025;
```

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```
        break;
    default:
        cout << "wrong input";
        break;
    }

    return 0;
}
```

OUTPUT-Q8

```
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PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q9_global_localvar.cpp -o q9_global_localvar } ; if ($?) { .\q9_global_localvar }
the value of local variable is 10
the value of global  variable is 20
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q8_callbyvalue_reference_Address.cpp -o q8_callbyvalue_reference_Address } ; if ($?) { .\q8_callbyvalue_
reference_Address }
press 1 for call by value
press 2 for call by address
press 3 for call by refrence
1
enter 2 no.s
12
32
swap values are 12&32
PS D:\my codes\OOPS\lab3 function overloading&default arg> cd "d:\my codes\OOPS\lab3 function overloading&default arg\"
; if ($?) { g++ q8_callbyvalue_reference_Address.cpp -o q8_callbyvalue_reference_Address } ; if ($?) { .\q8_callbyvalue_
reference_Address }
press 1 for call by value
press 2 for call by address
press 3 for call by refrence
3
enter 2 no.s
21
32
swap values are 32&21
PS D:\my codes\OOPS\lab3 function overloading&default arg>
```

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```
/*Q9 Write a program to demonstrate the use of scope resoluti
on operator(::) by
declaring same variable name globally and locally and display
 the value of global and
local variables.*/
#include<iostream>
using namespace std;
int n_025=20;//global variable
int main()
{

int n_025=10;//local variable
```

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```
 cout<<"the value of local variable is "<<n_025;
 cout<<"\nthe value of global  variable is "<<::n_025;
    return 0;
}
```

OUTPUT-Q9

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