

# Experiment 1

Experiment Name:- Programs on Structure & difference between C and C++ Programs

Example 1:-

Program:-

```
#include<stdio.h>

void fn(){    printf("Hello\n");}

int main(){    fn(1);    }
```

Output in C compiler

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ gcc Example1.c -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ ./1
Hello
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ █
```

Output in C++ compiler

```
#include<stdio.h>

void fn(){    printf("Hello\n");}

int main(){    fn(1);}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ g++ Example1.cpp -o 1
Example1.cpp: In function 'int main()':
Example1.cpp:6:9: error: too many arguments to function 'void fn()'
     6 |     fn(1);
       |         ^
Example1.cpp:2:6: note: declared here
     2 | void fn(){
       |     ^~
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ █
```

Example 2 :-

```
#include<stdio.h>

void fn(void){    printf("Hello\n");}

int main(){    fn(1);    }
```

Output in C compiler

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ gcc Example2.c -o 1
Example2.c: In function 'main':
Example2.c:6:5: error: too many arguments to function 'fn'
     6 |     fn(1);
       |     ^~
Example2.c:2:6: note: declared here
     2 | void fn(void){
       |     ^~
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ █
```

```
#include<stdio.h>

void fn(void){    printf("Hello\n");    }

int main(){    fn(1);    }
```

Output in C++ compiler

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ g++ Example2.cpp -o 1
Example2.cpp: In function 'int main()':
Example2.cpp:6:9: error: too many arguments to function 'void fn()'
    6 |     fn(1);
      |         ^
Example2.cpp:2:6: note: declared here
    2 | void fn(void){
      |     ^~
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$
```

### Example 3 :-

```
#include<stdio.h>

void fn(){

    struct str{          enum (FALSE,TRUE) BOOL;    };

    const int True=13;

}

int main(){    fn();    }
```

### Output in C compiler

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ gcc Example3.c -o 1
Example3.c: In function 'fn':
Example3.c:4:14: error: expected '{' before '(' token
    4 |         enum (FALSE,TRUE) BOOL;
      |               ^
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$
```

```
#include<stdio.h>

void fn(){

    struct str{          enum {FALSE,TRUE} BOOL;    };

    const int True=13;

}

int main(){    fn();    }
```

### Output in C++ compiler

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ g++ Example3.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ ./1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$
```

### Example 4 :-

### Output in C compiler

```
#include<stdio.h>

typedef struct point {

    double x,y;

    void getval(){          scanf("%lf %lf",&x,&y);    }

    void show(){          printf("X = %d y = %d \n",x,y);    }

}Point;

int main(){    Point p;    p.getval();    p.show();    }
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ gcc Example4.c -o 1
Example4.c:4:18: error: expected ':', ',', ';' or '__attribute__' before '{' token
   4 |     void getval(){
     |                   ^
Example4.c: In function 'main':
Example4.c:13:6: error: 'Point' {aka 'struct point'} has no member named 'getval'
   13 |     p.getval();
     |     ^
Example4.c:14:6: error: 'Point' {aka 'struct point'} has no member named 'show'
   14 |     p.show();
     |     ^
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ █
```

## Output in C++ compiler

```
#include<iostream>

using namespace std;

typedef struct point {
    double x,y;

    void getval(){
        cout<<"Enter the value of x and y\n";
        cin>>x>>y;
    }

    void show(){      cout<<"x = "<<x<<" y = "<<y<<endl;    }
}Point;

int main(){    Point p;    p.getval();    p.show();    }

shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ g++ Example4.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ ./1
Enter the value of x and y
2
3
x = 2 y = 3
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory0/Example$ █
```

## Example 5 :-

```
#include<stdio.h>

struct vector{
    double x;    double y;    double surface(){
        double s;        s=x*y;
        if(s<0)        s=-s;
        return s;
    } };

int main(){
    vector v1;
    v1.x=3;    v1.y=4;
    printf("The surface of v1 = %d \n",v1.surface());
}
```

## Output in C compiler

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/Laboratory0/Example$ gcc Example5.c -o 1
Example5.c:5:21: error: expected ':', ',', ';' or '__attribute__' before '{' token
5 |     double surface(){
  |                     ^
Example5.c: In function 'main':
Example5.c:14:5: error: unknown type name 'vector'; use 'struct' keyword to refer to the type
14 |     vector v1;
  |     ^~~~~~
  |     struct
Example5.c:15:7: error: request for member 'x' in something not a structure or union
15 |     v1.x=3;
  |     ^
Example5.c:16:7: error: request for member 'y' in something not a structure or union
16 |     v1.y=4;
  |     ^
Example5.c:17:41: error: request for member 'surface' in something not a structure or union
17 |     printf("The surface of v1 = %d \n",v1.surface());
  |                                         ^
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/Laboratory0/Example$
```

## Output in C++ compiler

```
#include<iostream>

using namespace std;

struct vector{

    double x;    double y;

    double surface() {

        double s;        s=x*y;

        if(s<0)

            s=-s;

        return s;

    }

};

int main() {

    vector v1;

    v1.x=3;

    v1.y=4;

    cout<<"The surface of v1 = "<<v1.surface()<<endl;

}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/Laboratory0/Example$ g++ Example5.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/Laboratory0/Example$ ./1
The surface of v1 = 12
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/Laboratory0/Example$
```

Submitted By :- Shyam Tiwari

Signature :-

Date:-