Functions

return-Type Function-name(Parameter List)
  O/P   i/p
atmost 1 value   0 or more
void

```
void main()
{
    ————
    ————
    ————
    ————
    ————
    ————

}
```

Functions

return-Type Function-name (Parameter List)

```
void display(  )
{
    cout << "Hello";
}


void main()
{
1   ____
2   display();
3   ____
4   ____
}
```

Functions

return-Type Function-name(Parameter List)

```
int    add (int x, int y)
{
    →  int z;
    →  z = x + y;
    →  return z;
→ }
```
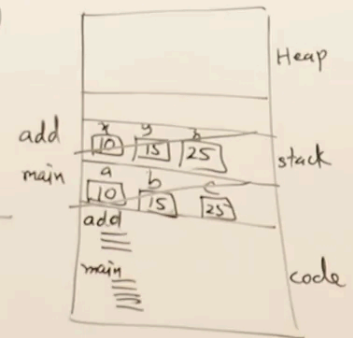
```
void main()
{
    int a=10, b=15, C;
  → C = add(a,b);
    cout << "sum is " << C;  — 25
→}
```


add |x|y|z| 10 | 15 | 25   stack

main |a|b|c| 10 | 15 | 25

add

main   code

Heap

Functions

- Function is a module which performs a specific task
- Functions are called by name
- Rules for giving function name is same as variable name
- Function can take 0 or more parameters
- Function can return single value
- Void function don't return any value
- Default return type is int

Functions - FAQ

Will the functions occupy space in memory?

Yes, the machine code of a function is kept code section.

Will a function occupy space even if it is not called?

Yes, if a function is defined in a program or included from library, it will occupy space in code section.

Where the memory for variable of a function is created?

Memory for the variables used in a function is created in stack

When the memory for variables will be allocated?

Memory for the variables will be allocated at runtime, when the function is called and deleted when function ends.

Is the memory for variables is allocated freshly for each call?

For for each call of a function memory for the variables is created freshly in the stack.

What is return type of a function?

When a function is called by passing parameters, it will compute and get the results. A function can return the result to a calling function.

Return type is the datatype of a value return by the function.

What is void?

If a function is not returning any value then tis return type is mentioned as void.

Difference between int main() and void main()

void main() means main function is not returning any value.

int main() means main function will return 0; 0 is a success code. The function have terminated successfully. main() will return the value to operating system, like windows.

In C++ int main() is standard.

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

/*program for function to find maximum of
3nos

*/
int maxim(int a,int b,int c)
{
        if(a>b && a>c)
                return a;
        else if(b>c)
                return b;
        else
                return c;
}
int main()
{
        int a,b,c,d;
        cout<<"enter 3nos";
        cin>>a>>b>>c;
        d=maxim(a,b,c);
        cout<<"maximum no is"<<d;
        return 0;
}
```

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

/*program for function with arguements

*/
float add(float x,float y);
{
        float z;
        z=x+y;
        return z;
}
int main()
{
        float x=2.3,y=7.9,z;
        z=add(x,y);
        cout<<z<<endl;
        return 0;
}
```

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

/*program for function display hello

*/
void display()
{
        cout<<"hello";
}
int main
{
        display();
        return 0;
}
```

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