

2.4 functions

Made By:-

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function :- a block of code / sub-program

↓
why?

- ↳ Reusable
- ↳ Readable
- ↳ Reducing code redundancy

↳ that is linked to a well-designed task

↳ only run when it is called

Issues w/o function

- ↳ lengthy
- ↳ bulky
- ↳ Bad readability
- ↳

w/o function

```
for (int i = 0; i < 5; i++)  
{  
    cout << "Aditya Jain" ;  
}
```

```
for (int i = 0; i < 5; i++)  
{  
    cout << "Aditya Jain" ;  
}
```

```
for (int i = 0; i < 5; i++)  
{  
    cout << "Aditya Jain" ;  
}
```

with function

```
void printName (string name)  
{  
    for (int i = 0; i < 5; i++)  
    {  
        cout << "Aditya Jain" ;  
    }  
}
```

```
printName ("Aditya Jain") ;
```

```
printName ("Aditya Jain") ;
```

```
printName ("Aditya Jain") ;
```

Declare

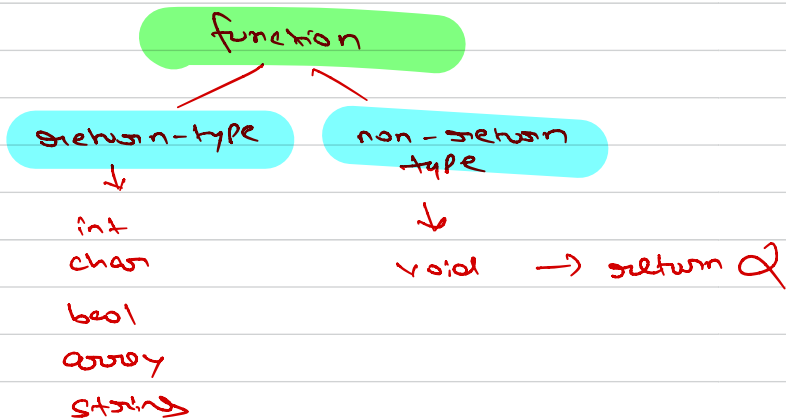
↳ void printMessage();

↳ int addNum (int a , int b);

Define

↳ int addNum (int a , int b)
{
 int sum = a + b ;
 return sum ;
}

↳ void printName ()
{
 cout << "Aditya Jain" ;
}



Syntax

return
type

function
name

(

input
parameter

)

{

// function body

}

return type

function
name

parameter
type

parameter
name

void
{

printName

(string name)

for (int i=0; i<5; i++)
{

cout << name << endl;

}

}

function
block

calling
function

printName ("Aditya");
printName ("Jain");

Simple function

↳ print 10 times

↳ "Sunder ko Sunder! posond
he"

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

```
void printLine ( )
{
    for (int i=0 ; i<10 ; i++)
    {
        cout << "Sunder ko Sunder! posond  
he" ;
    }
}
```

function does not return anything

function declaration

end of function

```
int main ( ) {
    // function call
    printLine ( ) ;
}
```

function call

function call stack

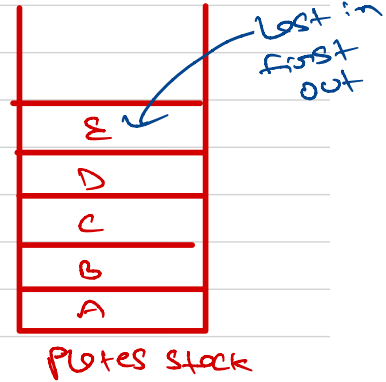
LIFO
↳ last in first out

↳ function call

↳ local variable

↳ return value

↳ K's func ne K's func
ko call kiya



int main()

{

cout << "inside main";

Print A();

cout << "Back in main";

return 0;

}

void printA()

{

cout << "inside A";

cout << "going
back to main";

}

O/P

inside main

inside A

going back to main

back in main



①

```
int main ()  
{  
    Print A ();  
}
```

②

```
Print A ()  
{  
    cout << "inside A";  
    Print B ();  
}
```

③

```
Print B ()  
{  
    cout << "inside B";  
    Print C ();  
}
```

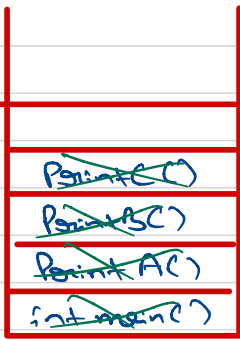
④

```
Print C ()  
{  
    cout << "inside C";  
}
```

⑦

⑥

⑤



Stack

O/P

inside A
inside B
inside C

Void with return

```
int main()
{
    PrintA();
    return 0;
}

PrintA()
{
    cout << "msg 1" ;
    return ;
    cout << "msg 2" ;
}
```