Functions

Function

A block of code / sub program that is linked to a well-defined task.

Why we need a function?

Readability increases
Reusability
To avoid bulking of code.

Example:

```
                                    Function define
                                    ↓
int main() {                        void printLine (){
  printLine();                      for(i=0; i<10; i++){
  return 0;                         cout<<" ";
}                                   }
```

Function call

Note:

Function definition should be above function call.

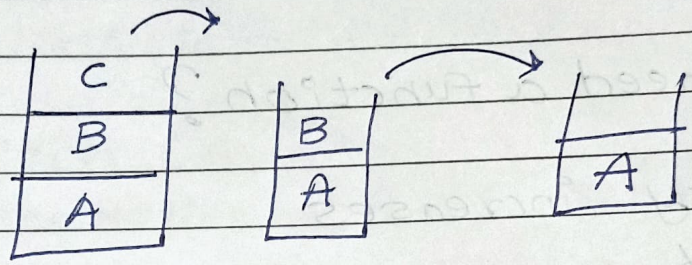
If we want to forcefully do this run, then we have separately ~~define~~ declaration statement at above of the call.

Some function doesn't return (No need of returning for e.g while printing) and some do return int, char, float, double etc.

Date
Page 58

Function call stack

Last IN First Out (LIFO)



when function is call then it is pushed inside stack when function returns then it gets pop.

Q.1) Write a Program to print sum of 3 numbers.

```
void printSum(int a, int b, int c){
    int answer = a+b+c;
    cout<<"sum is: "<<answer<<endl;
}

int printSum(int a, int b, int c){
    int ans = a+b+c;
    return ans;
}
```

⇓ In main

We have to store the number which is returned by printsum function.

Function call stack

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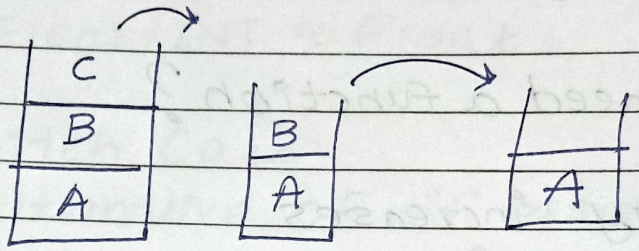

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H.W Predefined functions List in cpp.

class work Questions

1. Find max of 3 numbers of a, b, c.
2. couting from 1 to N
3. check Prime number or Not.
4. check even or odd.
5. sum of all No. upto 1 → N
6. sum of Even No. upto 1 → N

Homework Questions.

1. Function to find area of circle.
2. To find factorial of a No.
3. prime No from 1 → N
4. all digits of a Integer.
5. create a number using digits
6. Binary rep of decimal number.
7. convert Km into miles.
8. F to °C
9. count all set bits of a number
10. Check even/odd using bitwise operator.

Q. 1)

```
int printMaximum(int n1, int n2, int n3){
    int ans1 = max(n1, n2);
    int finalAns = max(ans1, n3);
    return finalAns;
}
```

(Q.2)

```
void printCounting (int n) {
  for (int i = 1; i <= n; i++) {
      cout << i << endl;
  }
}
```

(Q.4)

```
void checkEvenOdd (int num) {
  if (num % 2 == 0) {
      cout << "Even Number" << endl;
  }
  else {
      cout << "Odd Number" << endl;
  }
```

(Q. 5)

```
void findsumuptoN (int n) {
  int sum = 0;
  for (int i = 1; i <= n; i++) {
      sum = sum + i;
  }
  cout << "Final sum: " << sum << endl;
}
```

Q.6)

```
void findsumEvenuptoN (int N) {
    int sum=0;
    for(int i=1; i<=n; i++) {
        if(i%2==0) {
            sum = sum+i;
        }
    }
    cout<< "Final sum:" <<sum<<endl;
}
```

Bad Practice
what is good ?
↳ H.W

Q.3)

```
bool checkPrime(int n) {
    for (int i=2; i<n; i++) {
        if(n%i==0) {
            return false;
        // Remainder=0 → Perfectly divisible
        //Not a prime Number
        }
}
//yaha par main keh sakta hu
//K [2,3,4,5----n-1], koi bhi N KO
//perfectly divide nhi kar paya hoga.
//it means N is a prime NO.
 return true;
}
```