Functions

Why do we need functions ?

Say I have a, b, c & i want to find sum of digits of all 3 numbers

```
int sum_a=0
while (a>0){
    digit = a %. 10
    sum_a += digit
    a = a/10
}
print (sum_a)
```

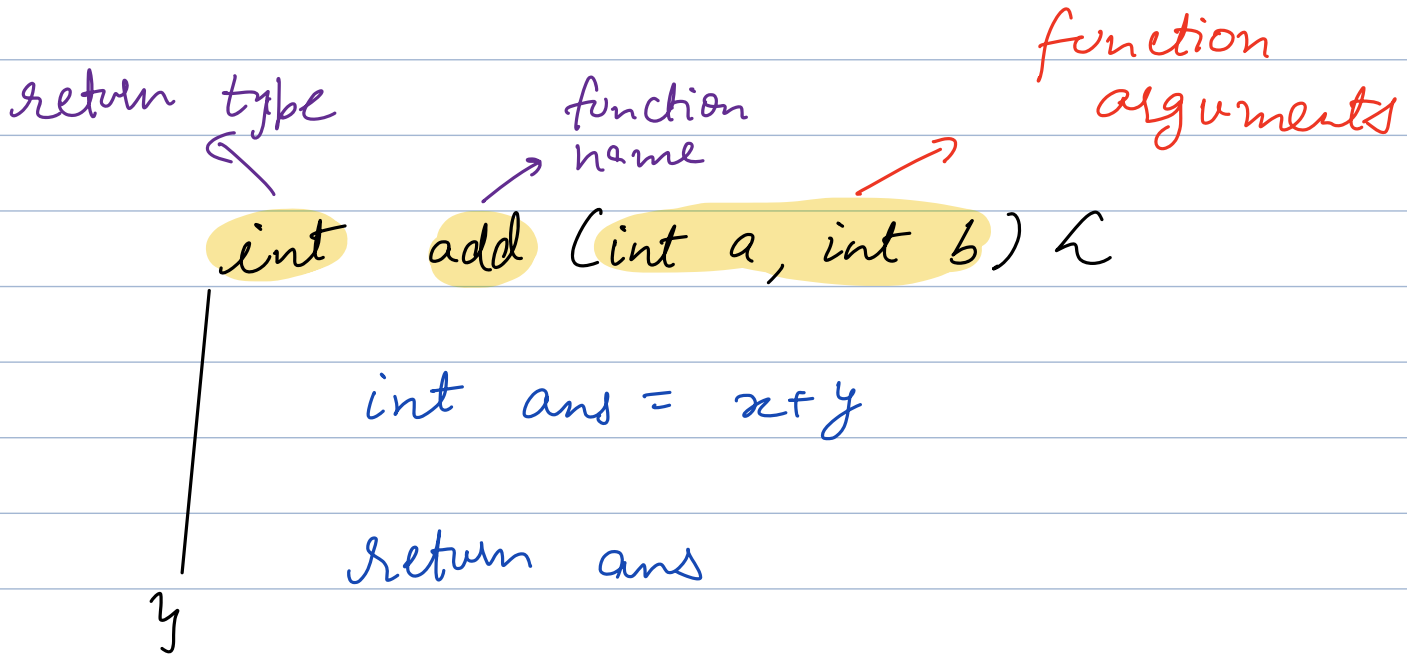
```
int sum_b=0
while (b>0){
    digit = b %. 10
    sum_b += digit
    b = b/10
}
print (sum_b)
```

```
int sum_c=0
while (c>0){
    digit = c % 10
    sum_c += digit
    c = c /10
}
print (sum_c)
```

Redundancy , readability , maintainability

```
int digit_sum ( int N) {
    int sum =0
    while (N>0){
        digit = N % 10
        sum += digit
        N = N /10
    }
    return sum
}
```

```
print ( digit_sum (10))
print ( digit_sum (736))
```




```
void print_name ( string s ) {
    print (s)
}
```

function name

public static void main ( )

datatype (will not return anything)

Q Function to check even or not even

12 → true 5 → false

datatype of answer — function name — inputs/arguments

```
boolean isEven ( int n ){
    if (n % 2 == 0)
        return true
    else
        return false
}
```

Q Return if integer is small, medium or large

< 10	small
10 – 20	medium
> 20	large

5	14	22
small	medium	large

```
String intSize ( int n ) {

    if( n < 10)
        return "small"

    else if ( n >=10 && n<=20 ){
    |   return "medium"
    }

    else
       return "large"
}
```

Q Given length & breadth as double datatype, return area of rectangle

1.0
2.0 → 2.0

1.5
2.5 → 3.75

```
double area( double len, double breadth) {
    double ans = len * breadth
    return ans
}
```

Q. Given radius (double) of a circle, find area

Hint : Formulae is $area = \pi r^2$

π is around 3.14

```
double areaOfCircle(double r){
    double area = 3.14 * r * r
    return area
}
```

Q// Given N, print all primes between 1 & N

10 → 2 3 5 7

Do we know how to check if a number is prime or not ?

```
boolean isPrime ( int n ) {
    int count = 0
    for ( int i = 1 ; i ≤ n ; i++ ) {
        if ( n % i == 0 )
            count ++
    }
    if ( count == 2 )
        return true
    else
        return false
}
```

```
for ( i=1 ; i<=N ; i++ ){
    if ( isPrime(i) == true ){
        print (i)
    }
}
```

Q. find simple interest for a deposit

$$\frac{deposit * rate * time}{100}$$

```
double simpleInterest ( int d, double r, int t){
    double ans = (d*r*t)/100
    return ans
}

double calc( double x, double y){
    x = 2*x
    return x/y
}
```

print (calc (17, 4))

print (calc (4, 17)) 0.47058...

N-1 2(N-1) 3(N-1)

N-2 2(N-2 3(N-2 4(N-2) 5 N-2

4.1 4.8 4.7 4.9 → 5

7, 8, 9, 10 ✓