Lecture 2
Friday, 19 October 2018 12:00

user Input :-

variables } fn.
fn.exec
Functions

int n=1000 } → easily-reuse

```
public static void main(String[] args){
    Scanner sc = new Scanner(System.in);
```

int [] a = sc.nextInt(5); //one 1000
System.out.print("Enter the number");
int a = sc.nextInt(); // in → 4 → a

System.out.print("Enter the line");
int b = sc.nextInt(); // 2 → b

int d = (b * a+b) // one; → 1000
System.out.(d);

}

Q:- To check whether a number is prime or not?

int number.
↳ number.
int to 4
5%3 → 2.

number % 2 → 1
% 3 → 2
% 5 → 0

number % divisor → 0 → 2
% 3 → 0
% 5 → 2

is prime.

```
public static void main(String[] args){
    Scanner s = new Scanner(System.in);
    int n = s.nextInt();   // 3.
    int divisor = 2;
    while (divisor <= n-1){
        if (n % divisor == 0){
            System.out.Prime();
            break;
        }
        divisor++;
    }
    System.out.("Prime");
}
}
```

3 % 2 → 1

Not Prime.
Prime.

5134 → 4 value + 3 × 10 + 1 × 100 + 5 × 1000

5134 % 10 = 4
5134/10 = 513
513 % 10 = 3
513/10 = 51
51 % 10 = 1
5 % 10 = 5
5134 = 5 × 1000 + 1 × 100 + 3 × 10 + 4 × 1

• Print Reverse → 5134 → 4315

```
public static void main(String[] args){
    int n = 5134;
    int rev = 0;
    while (n != 0){
        int rem = n % 10;
        rev = rev * 10 + rem;
        n = n / 10;
    }
    System.out.(rev);
}
}
```

0	4315
n	rev

4315 + 1 = 431

5134 % 10
0 * 10 + 4 → 4
5134 / 10 = 513
4 * 10 + 3 = 43

Q:- To find gcd of 2 numbers?
↳ (12, 4) → 4.
↳ (7, 13) → 1
greatest common divisor.

(6, 24) → dividend: 24, divisor: 6.
6 | 24 | 3 | 0

7, 54 → 7 | 54 → dividend, divisor

54 % 7 → 5
7 % 5 → 2
5 % 2 → 1

di → 5 → dividend, divisor → 7
5 → dividend, divisor → 2
4 → dividend, divisor → 1
2 → dividend, divisor → 0 → rem

2 % 1 == 0 → System.out.(divisor);

```
public static void main(String[] args){
    int a = s.nextInt();
    int b;
    if (dividend > 0, int divisor = 0;
    if (a > b){
        dividend = a;
        divisor = b;
    } else {
        dividend = b;
        divisor = a;
    }

    while (dividend % divisor != 0){
        int rem = dividend % divisor;
        dividend = divisor;
        divisor = rem;

    }
    System.out.(divisor);
```

35, 5

Q:- Nth Fibonacci

term	0th	1st	2nd	3rd	4th	5th	6th
value	0	1	1	2	3	5	8 . . .

Print n=4 → 3

```
public static void main(String[] args){
    int fn = 0;
    int sn = 1;
    int n = 4;
    int counter = 1;
    while(counter <= n){
        int next = fn + sn;
        fn = sn;
        sn = next;
        counter++;
    }
    System.out.(fn); // 0
```

0 th, 1 th, 2 th, 3 th, 4 th, 5 th

0	1	1	2	3	5
fn	sn	next	counter		

5

(1<=1)

0 1 1
fn sn

(d<=4)
3<=4
4<=4
5<=4
0 1 1 2 3
fn sn

0	1
fn	sn

=> | 1 | next

1 1

0 | 1 | 1 | 2

fn = 1;
n = 0

1 <= 0

n = 0

while(counter<=n){ System.out.(fn); } ⟹ 0.

0th 1st
0 1

System.out.(fn); // 1

int fn=0, sn=1;
for (int counter=1; counter<=n; counter++){
int next = fn+sn;
fn = sn;
sn = next;

System.out.(fn);

Q⇒ A and B

A	B
48	37

A % M = B % M.
↳ M ⇒ 54.

(A-B)
↳ M = 48-37
M = 11

23 | 54

23 % 31 = 23
54 % 31 = 23

48 % 11 ⇒ 4
37 % 11 ⇒ 4

A ⇒ B+A-B. A = A+B-B ⇒ B+(A-B)

A % M = (B + A-B) % M.

⇒ A % M = (B + (A-B)) % M.

(A % M) = (B % M) + ((A-B) % M)
↳ (A-B)

5 % 5 = 0.

Assignments
↳ challenges
↳ Online Course ↳

next line debugger → fn+f6
end debugger → fn+f8