Java DSA Lecture 11

Tuesday, November 29, 2022 7:57 PM

Print powers of 2 less than n

Problem | Submissions | Leaderboard | Discussions

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for (1 → < n)

Input Format

For each test case, you will be given n as an integer input from the user.

$2^0 = 1$ $2^4 = 16$
$2^1 = 2$ $2^5 = 32$
$2^2 = 4$
$2^3 = 8$

< 50

Sample Input 0

```
50
```

5 0

Sample Output 0

```
1
2
4
8
16
32
```

int n → input

for (1 → n) update by i*=2 ;

```
Scanner scn= new Scanner(System.in);
int n = scn.nextInt();
for(int i = 1; i<=n^50; i*=2){
    System.out.println(i);
}
```

Memory

i = 1 2 4 8 16 32 64

1
2
4
8
16
32

output

Print n/3

int n → input
for (n → >0) i/=3
print (i);

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Take n as an integer input from the user. Keep on dividing n by 3 and print the resultant value of n each time in a separate line, till the value of n is greater than 0.

Note: Start printing from n, keep on updating n by dividing n by 3 each time, and print the the updated value of n each time.

```
Scanner scn = new Scanner(System.in);
int n =scn.nextInt(); 190
for(int i = n ; i>0 ; i/=3){
    System.out.println(i);
}
```

190
63
21
7
2

63
3 | 190
18
10
9
1

21
3 | 63
6
03
3
0

0

Sample Input 1

```
190
```

Sample Output 1

```
190
63
21
7
2
```

GKSTR12 Multiples of 3, 5 and Both 3 and 5

Problem | Submissions | Leaderboard | Discussions

You have to take integer N(inclusive) as input, and Starting from 1 and till n, Print all the **multiples** of **3, 5 and Both 3 and 5.** in the same line.

≤n

Sample Input 0

```
68
```

Sample Output 0

```
3 5 6 9 10 12 15 18 20 21 24 25 27 30 33 35 36 39 40 42 45 48 50 51 54 55 57 60 63 65 66
```

```
Scanner scn= new Scanner(System.in);
int n = scn.nextInt();
for(int i = 1 ; i<=n ; i++){
    if(i%3 == 0 || i%5==0){
        System.out.print(i + " ");
    }
}
```

Running Sum for loop

Problem | Submissions | Leaderboard | Discussions

You will be given a number n of integer data-type.

After this you will be given n integers as input of integer data-type, and you have to print the sum after you take input of an integer each time.

Initially the sum is zero.

Sample Input 0

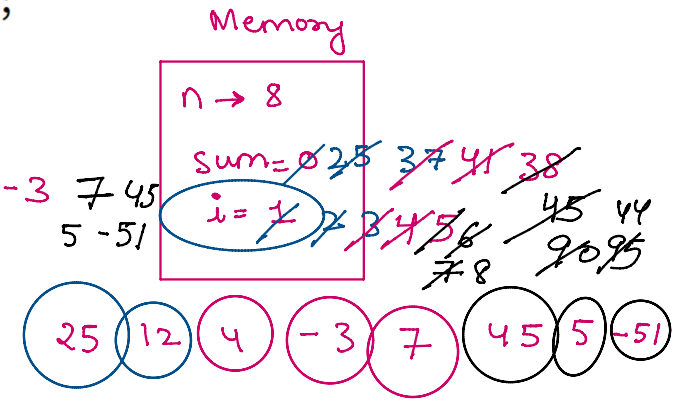
```
5
3
2
2
-1
4
```

Sample Output 0

```
3
5
7
6
10
```

```
}
```

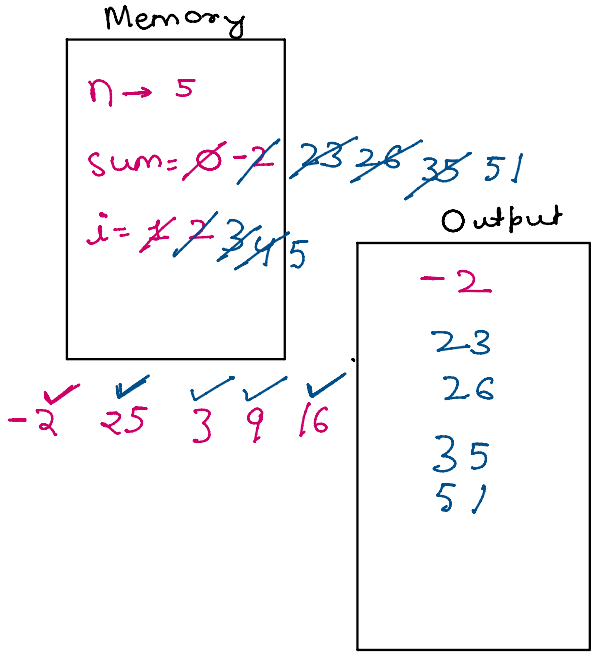
```
Scanner scn = new Scanner(System.in);
int n = scn.nextInt();
int sum = 0;
for(int i = 1 ; i <= n ; i++){
    int num = scn.nextInt();
    sum+=num;
    System.out.println(sum);
}
```



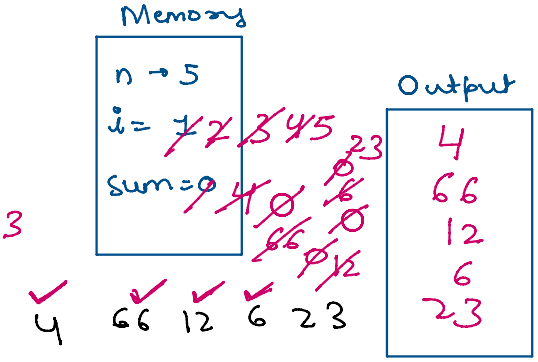
Output

25
37
41
38
45
90
95
44

```
Scanner scn = new Scanner(System.in);
int n = scn.nextInt();
int sum = 0;
for(int i = 1 ; i <= n ; i++){
    int num = scn.nextInt();
    sum+=num;
    System.out.println(sum);
}
```




```
Scanner scn = new Scanner(System.in);
int n = scn.nextInt();
int sum = 0;
for(int i = 1 ; i <= n ; i++){
    int num = scn.nextInt();
    sum+=num;
    System.out.println(sum);
}
```



Fibonacci number 12

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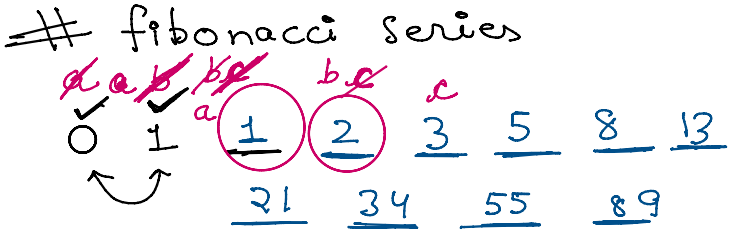
You have given an integer n , you have to print first n numbers of the fibonacci series till n.

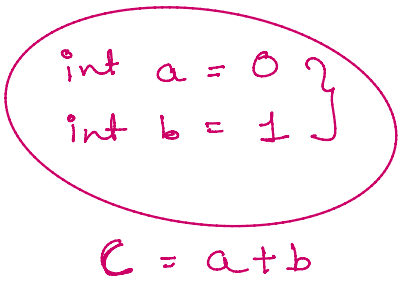
Sample Input 0

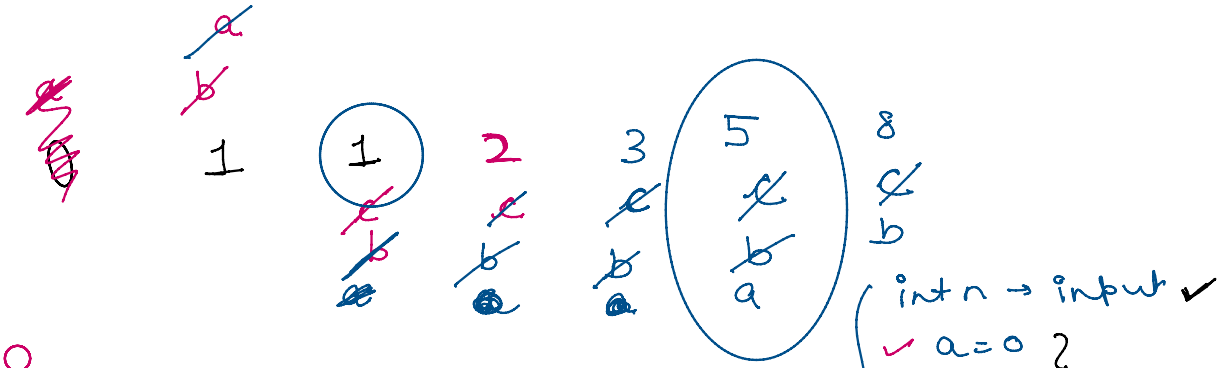
```
10
```

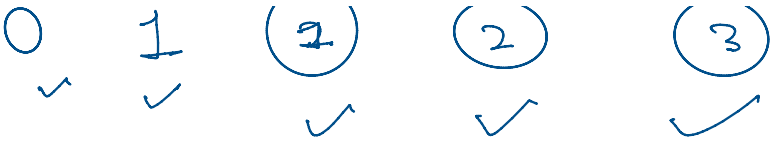
Sample Output 0

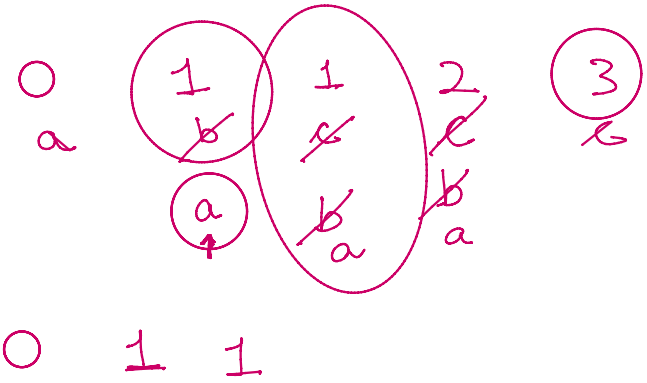
```
0 1 1 2 3 5 8 13 21 34
```

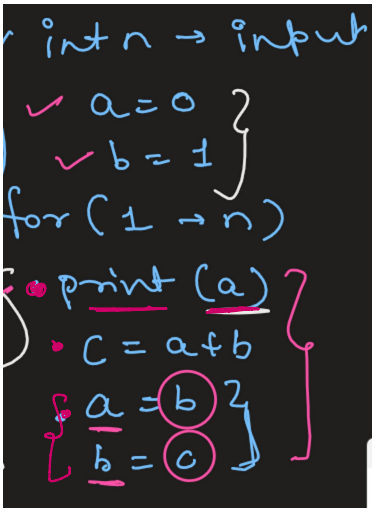










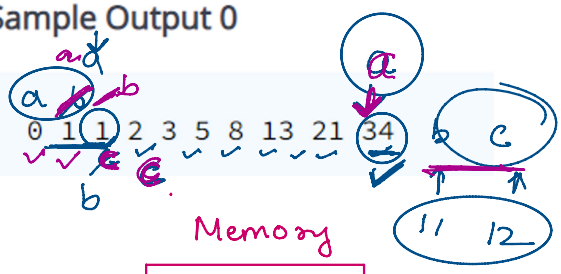



```java
Scanner scn = new Scanner(System.in);
int n = scn.nextInt();
int a = 0;
int b = 1;
for(int i = 1 ; i<=n ; i++){
    System.out.print(a + " ");
    int c = a + b;
    a = b;
    b = c;
}
```

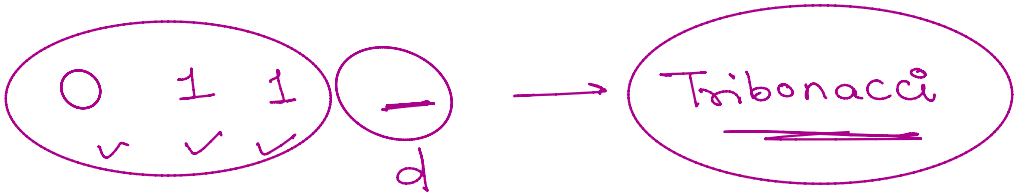
```
10
```

Sample Output 0

```
0 1 1 2 3 5 8 13 21 34
```



0 1 1 2 3 5 8 13 21 34



Nth Fibonacci Number 7

Problem | Submissions | Leaderboard | Discussions

Nth term of Fibonacci series F(n), where F(n) is a function, is calculated using the following formula -

```
F(n) = F(n-1) + F(n-2),
where, F(1) = F(2) = 1
```

0 1 1 2

(n-2)(n-1) n

Provided N you have to find out the Nth Fibonacci Number.

Sample Input 0

```
6
```

Sample Output 0

```
8
```

Explanation 0

```
Now the number is '6' so we have to find the "6th" Fibonacci number
So by using the property of the Fibonacci series i.e
1, 1, 2, 3, 5, 8
So the "6th" element is "8" hence we get the output.
```

0 1 1 2 3 5 8

a=0

for (1 ≤n) → 6

int n → input

a=0, b=1;

for (1 → n) {

int c = a+b

a=b

b=c ;

}

print(a) ;

```
Scanner scn = new Scanner(System.in);
int n = scn.nextInt();
int a = 0;
int b = 1;
for(int i = 1; i<=n ; i++){
    int c = a + b;
    a = b;
    b = c;
}
System.out.println(a);
```

Memory

n = 7

a = 0 1 1 2 3 5 8 13

b = 1 1 2 3 5 8 13 21

c = 1 2 3 5 8 13 21

i = 1 2 3 4 5 6 7 8