Web Programming 2

BitWise Not (~) and Negative Numbers
Prime Numbers
Cloud Computing (AWS)

Topics

- Programming Challenges
  - Binary Numbers (Refresh)
  - Basic input (Test cases and Inputs)
  - Primary Numbers
- Cloud Computing
  - AWS Account

Power of 2s

Power of 2	Exact Value (X)	Approx. Value	X Bytes into MB, GB, etc.
7	128		
8	256		
10	1,024	1 thousand	1 K
16	65,536		64 K
20	1,048,576	1 million	1 MB
30	1,073,741,824	1 billion	1 GB
32	4,294,967,296		4 GB
40	1,099,511,627,776	1 trillion	1 TB

Bitwise AND (&)

A	B	A & B
0	0	0
0	1	0
1	0	0
1	1	1

Bitwise AND (&)

13 & 11

13	0001101	# 13 = 8 + 4 + 1
11	0001011	# 11 = 8 + 2 + 1
13 & 11 = 9	**0001001**	# 8 + 1 = **9**

A	B	A & B
0	0	0
0	1	0
1	0	0
1	1	1

Bitwise OR (|)

A	B	A | B
0	0	0
0	1	1
1	0	1
1	1	1

Bitwise OR (|)

13 | 11

13	0001101	# 13 = 8 + 4 + 1
11	0001011	# 11 = 8 + 2 + 1
13 | 11 = 15	**0001111**	# 8 + 4 + 2 + 1 = **15**

A	B	A | B
0	0	0
0	1	1
1	0	1
1	1	1

Bitwise XOR (^)

A	B	A ^ B
0	0	0
0	1	1
1	0	1
1	1	0

Bitwise XOR (^)

13 ^ 11

13	0001101	# 13 = 8 + 4 + 1
11	0001011	# 11 = 8 + 2 + 1
13 ^ 11 = 15	**0000110**	# 4 + 2 = **6**

A	B	A ^ B
0	0	0
0	1	1
1	0	1
1	1	0

Bitwise Left Shift (<<)

5 << 1

5	0000101	# 5 = 4 + 1
10	**0001010**	**# 10 = 8 + 2**

Bitwise Right Shift (>>)

13 >> 2

13	0001101	# 13 = 8 + 4 + 1
3	**0000011**	**# 3 = 2 + 1**

Practice - BitWise

- https://pconrad.github.io/old_pconrad_cs16/topics/bitOps/

Bitwise NOT (~)

- The complement of X (Flip the bit)
  - 0 → 1
  - 1 → 0

A	~A
0	1
1	0

Bitwise NOT (~)

a = 3
~a & 0xFFFFFFFF

A	~A
0	
1	

This is called One's Complement

Bitwise: How is a negative number stored?

- Two's compliment
  - ~ + 1

A	-A
0	
1	
2	

Environment

Windows

- Python
- Visual Studio Code
- Git

Input:
First line contains **L**.
Second line contains **N**, number of photos.
Following N lines each contains two space separated integers **W** and **H**.

Output:
Print appropriate text for each photo in a new line.

Constraints:
1 <= **L**,**W**,**H** <= 10000
1 <= **N** <= 1000

SAMPLE INPUT	SAMPLE OUTPUT
180 3 640 480 120 300 180 180	CROP IT UPLOAD ANOTHER ACCEPTED

Exercise1 - Input

Problem:
You have been given a String S consisting of ....

Input Format
The first and only line of input contains the String S

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You have been given a String S consisting of ....

Input Format
The first and only line of input contains the String S

```
S = input()
# Write logic
```

Exercise2 - Input

Input Format
First line contains L.
Second line contains N, number of photos.
Following N lines each contains two space separated integers W and H.

Sample Input
180
3
640 480
120 300
180 180

Exercise2 - Input

Input Format
First line contains L.
Second line contains N, number of photos.
Following N lines each contains two space separated integers W and H.

Sample Input
180
3
640 480
120 300
180 180

```
L = int(input())
N = int(input())
for _ in range(N)):
        W, H = map(int, input().split())
        # Write logic
```

Exercise3 - Input

Input Format
First line of input will consist of a single integer **T** denoting number of test-cases. Each test-case consists of a single integer **N** denoting the seat-number.

Sample Input
4 # num of records
18
40
51
16

Exercise3 - Input

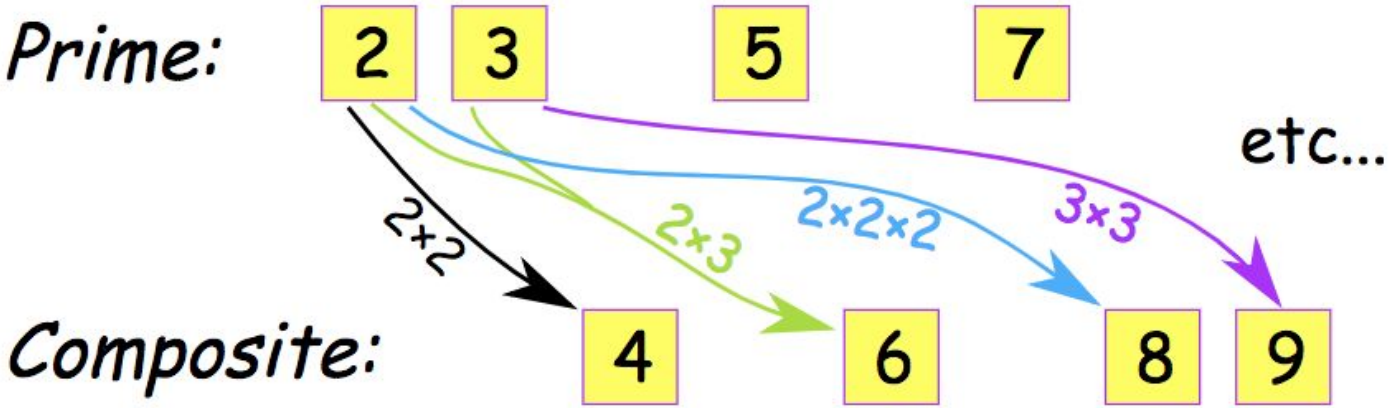
Input Format
First line of input will consist of a single integer **T** denoting number of test-cases. Each test-case consists of a single integer **N** denoting the seat-number.

Sample Input
2
18
40

```
T = int(input())
for _ in range(T):
        N = int(input())
        # Write logic
```

Molecules to Atoms is Integers to ___?

Fundamental Theorem of Arithmetic



Prime Numbers

Write a function to find if a given integer is a prime number.

Prime Numbers

2, 4, 6, 8, 10, …

3, 5, 7, 9, 11, ...

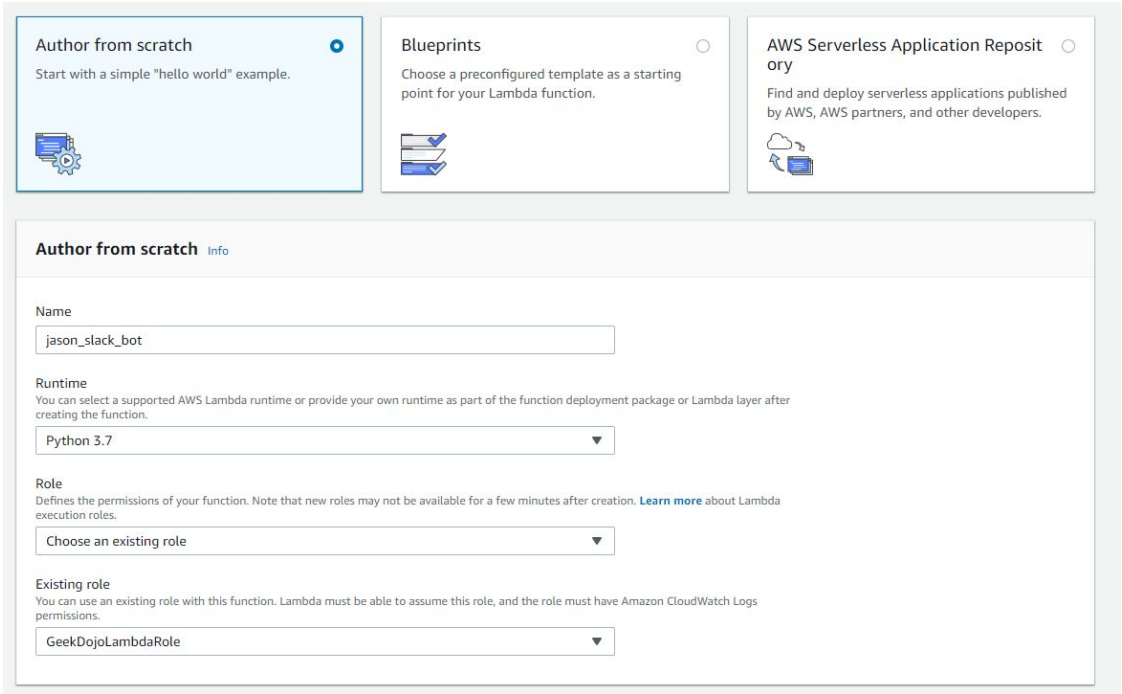
x*x = 17 // Instead of checking till n, we can check till √n because a larger factor of n must be a multiple of smaller factor that has been already checked

Cloud Computing - AWS

- Create Accounts
- Regions

Cloud Computing - AWS Lambda

- Role: GeekDojoLambdaRole
- Blueprint - HelloWorld
- Event name: test



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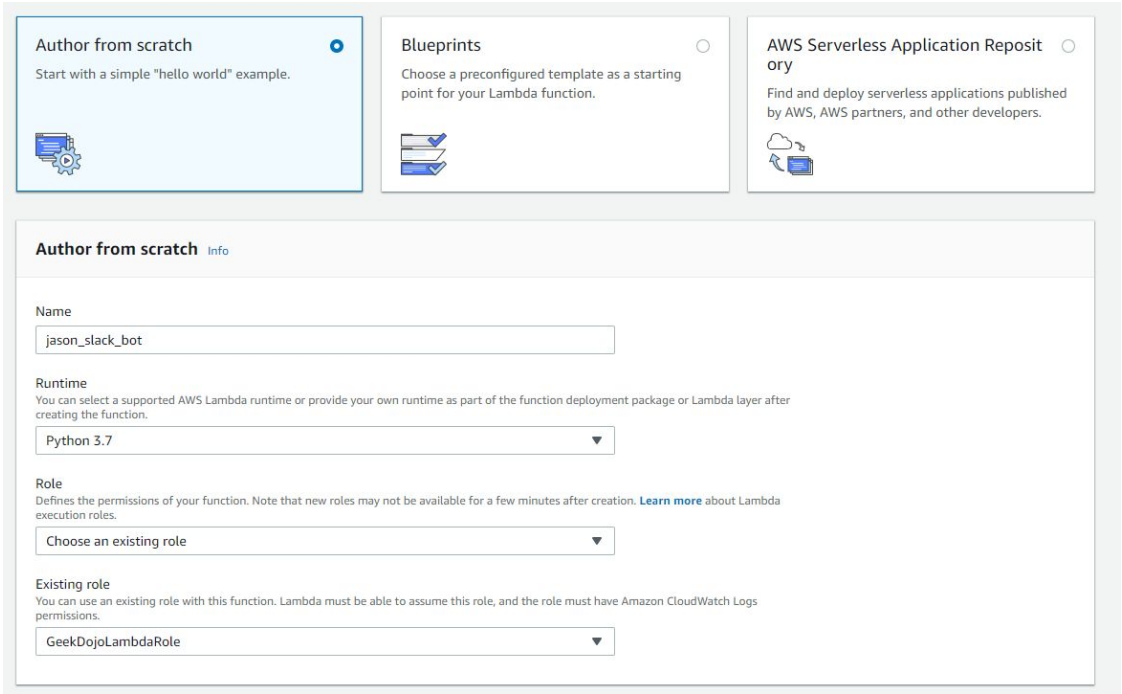

Homework for Week 1

- Coding Challenges (Mon ~ Thur)