

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	<u>0001011</u>	# 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

11 0001011

13 | 11 = 15 **0001111**

13 = 8 + 4 + 1

11 = 8 + 2 + 1

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	<u>0001011</u>	# 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)
 - $0 \rightarrow 1$
 - $1 \rightarrow 0$

A	$\sim A$
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
 - $\sim + 1$

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:

$1 \leq L, W, H \leq 10000$

$1 \leq N \leq 1000$

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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Problem:

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.

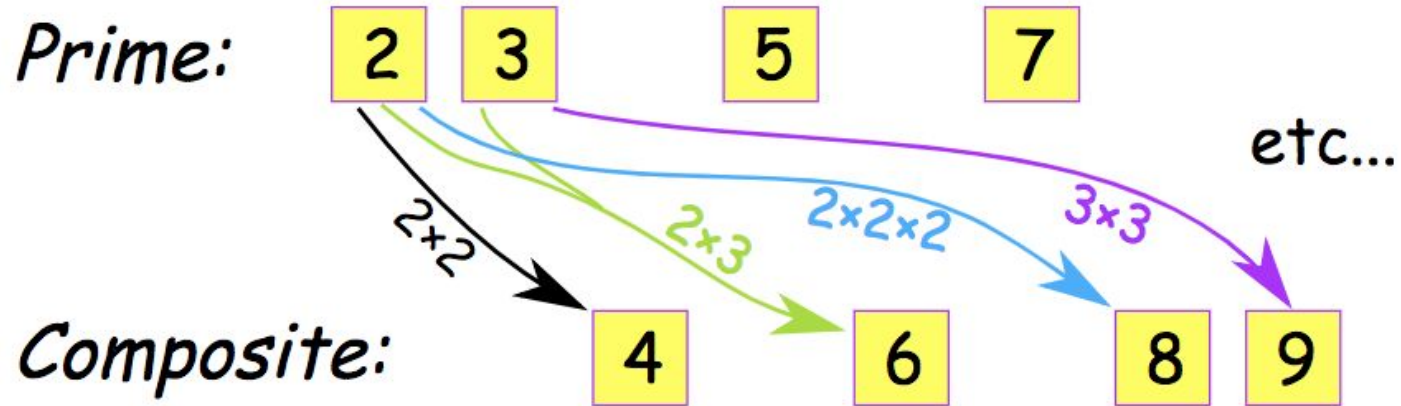
Sample Input

```
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 \sqrt{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


Author from scratch ☒

Start with a simple "hello world" example.




Blueprints ☐

Choose a preconfigured template as a starting point for your Lambda function.



AWS Serverless Application Repository ☐

Find and deploy serverless applications published by AWS, AWS partners, and other developers.



Author from scratch [Info](#)

Name

Runtime

You can select a supported AWS Lambda runtime or provide your own runtime as part of the function deployment package or Lambda layer after creating the function.

Role

Defines the permissions of your function. Note that new roles may not be available for a few minutes after creation. [Learn more](#) about Lambda execution roles.

Existing role


You can use an existing role with this function. Lambda must be able to assume this role, and the role must have Amazon CloudWatch Logs permissions.

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Choose a preconfigured template as a starting point for your Lambda function.



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Name

jason_slack_bot

Runtime

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Python 3.7 ▼

Role

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Choose an existing role ▼

Existing role

You can use an existing role with this function. Lambda must be able to assume this role, and the role must have Amazon CloudWatch Logs permissions.

GeekDojoLambdaRole ▼

Homework for Week 1

- Coding Challenges (Mon ~ Thur)