[CS302-Data Structures] Quiz 3

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Spring 2019 Semester

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Q1 (Big-O): What is the time, space complexity of following code:

```
int a = 0, b = 0;
for (i = 0; i < N; i++) {
      a = a + rand();
}
for (j = 0; j < M; j++) {
      b = b + rand();
}
```

A1:

```
O(N + M) time, O(1) space
```

Q2 (Big-O): What is the time complexity of following code:

```
int i, j, k = 0;
for (i = n / 2; i <= n; i++) {
      for (j = 2; j <= n; j = j * 2) {
            k = k + n / 2;
      }
}
```
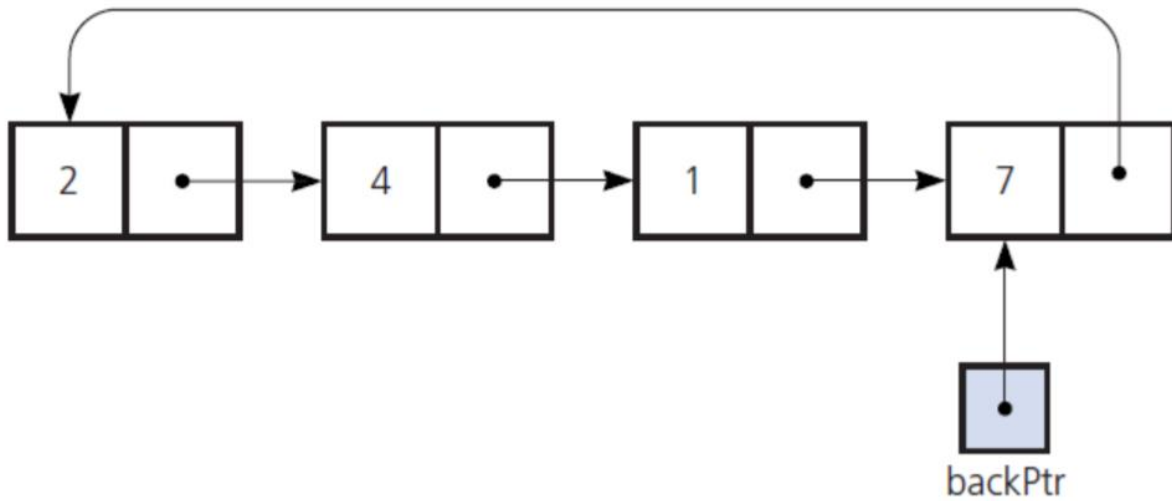
A2:

O(nlogn)

Q3 (Big-O): What is the time complexity of following code:

```
int a = 0, i = N;
while (i > 0) {
        a += i;
        i /= 2;
}
```

A3:

O(logN)

Q3 (ADT Queue): If you use a circular chain that has only a tail pointer as shown in the Figure below, how do you access the data in the first node.

A2: