

Assignment:- Time and Space Complexity 1

- 1) Calculate the time complexity for the following code snippet.

```
int c = 0;
for(int i = n; i > 0; i /= 2) {
    c++;
}
```

- 2) Calculate the time complexity for the following code snippet.

```
int c = 0;
for(int i = n; i > 1; i /= i) {
    c++;
}
```

- 3) Calculate the time complexity for the following code snippet where k is some constant ($k \ll n$).

```
int c = 0;
for(int i = 0; i < n; i += k) {
    c++;
}
```

- 4) Calculate the time complexity for the following code snippet.

```
int c = 0;
for(int i = 1; i < n; i *= 2) {
    c++;
}
```

- 5) Calculate the time complexity for the following code snippet. Here k is some constant value less than n which is not equal to 1.

```
int c = 0;
for(int i = 0; i < n; i++) {
    i*=k;
}
```

- 6) Calculate the time complexity for the following code snippet.

```
int c = 0;
for(int i = 0; i < n; i++) {
    c +=i;
}
```

- 7) Calculate the time complexity for the following code snippet.

```
int c = 0;
for(int i = 0; i < n; i++) {
    for(int j = 0; j < i; j++){
        c++;
    }
}
```