

# Quiz 1 - Introduction to Algorithms, CSS 215

September 17, 2019

Full Name :

Student's ID :

## 1 Question 1 [6 points]

### 1.1 Explain the followings : [4 points]

- What is the time complexity of adding element to Linked List?
- What is the time complexity of searching element in Hash Table, when there is no collision?
- When you have too many deletions which data structure is better to use?  
a) array b)linked list c) hash table
- how many ways to avoid collision in hash table?

### 1.2 Determine Big O [2 points]

**VI.10 The following code sums the digits in a number. What is its big O time?**

```
int sumDigits(int n) {
    int sum = 0;
    while (n > 0) {
        sum += n % 10;
        n /= 10;
    }
    return sum;
}
```

**VI.1 The following code computes the product of a and b. What is its runtime?**

```
int product(int a, int b) {
    int sum = 0;
    for (int i = 0; i < b; i++) {
        sum += a;
    }
    return sum;
}
```

## 2 Question 2 [4 points]

**Is Unique:** Implement an algorithm to determine if a string has all unique characters.

**Please, write name of the programming language For missing name -2 points**