Laboratory practice No. 2: Big O Notation

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1) *GitHub's codes*

2) *Project Questions Simulation*

2.a. *Algorithms's chart*

2.b. *Algorithms's graphics*

2.c. *Given the above information, how efficient is merge sort compared with insertion sort for large arrays? Is it appropriate to use insertion sort for a data base with millions of elements?*

2.d. *Explain with your own words how does the Codingbat's Array3 exercise maxSpan works. Why?*

2.e. *Calculate the complexity of the on-line exercise*

i.

```
public int countEvens(int[] nums) {
 int n=0;
  for(int i=0;i<nums.length;i++){
      if(nums[i]%2==0) n+=1;
  }
  return n;
}
```

ii.

```
 public boolean lucky13(int[] nums) {
    for(int i=0;i<nums.length;i++){
        if(nums[i]==3 || nums[i]==1) return false;
    }
    return true;
}
```

iii.

```
   public boolean isEverywhere(int[] nums, int val) {
    for(int i=0;i<nums.length-1;i++){
        if(nums[i]!=val && nums[i+1]!=val) return false;
    }
    return true;
}
```

iv.

```
     public boolean modThree(int[] nums) {
    for(int i=0;i<nums.length-2;i++){
        if(nums[i]%2==0 && nums[i+1]%2==0 && nums[i+2]%2==0) return true;
        if(nums[i]%2==1 && nums[i+1]%2==1 && nums[i+2]%2==1) return true;
    }
    return false;
}
```

v.

```
    public boolean tripleUp(int[] nums) {
    for(int i=0;i<nums.length-2;i++){
        if(nums[i+1]==nums[i]+1 && nums[i+2]==nums[i]+2) return true;
    }
    return false;
}
```

2.f. Explain what the variable n means in the previous exercises

3) Midterm Simulation

4) Recommended reading