CIS263 Assignment Two

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1. For each of the code fragments (a,b,c,d) listed below:
    a. Give an analysis of the running time (what is the Big Oh?)
    b. Implement the code in the language of your choice and give the running time for several values of N. In order to calculate the run times, log the time before the code execution and the time after. The difference is the run time.
    c. Compare your analysis with the actual run times.

```
int total = 0;

//(a)
for(int i = 0; i < n; i++){
    total++;
}

//(b)
for(int i = 0; i < n; i++){
    for(int j = 0; j< n; j++){
        total++;
    }
}

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

//(d)
for(int i = 0; i < n; i++){
    for(int j = 0; j < i; j++){
        if(j % 2 == 0){
            total++;
        }
```

```
    }
}
```

Approved programming languages: C, C++, C#, Python, Java.

Hand-in:

1. A word document/PDF that contains the analysis/answer to question 1.
2. A file containing the source code for your program (no zip files)
3. A screenshot of the execution of your program. Please be sure to use values that will adequately demonstrate the run time of the algorithm. It is up to you to choose unit testing that demonstrates the run time of them properly.

Grading Rubric

	0%	50%	100%
Number 3 Analysis (25%)	2 or more errors in the run time analysis given for each code fragment	1 error in the run time analysis given for each code fragment	Correct run time analysis given for each code fragment
Number 3 Code (20%)	The functionality of the program is not accurately demonstrated.	Part of the functionality of the program is accurately demonstrated.	Functionality of the program is demonstrated in an easy to follow manner.
Number 3 analysis comparison (25%)	Comparison difficult to read or hard to follow.	Comparison exists, but is lacking in sustenance or appears to be done quickly.	Comprehensive comparison.

See blackboard for point breakdown.

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