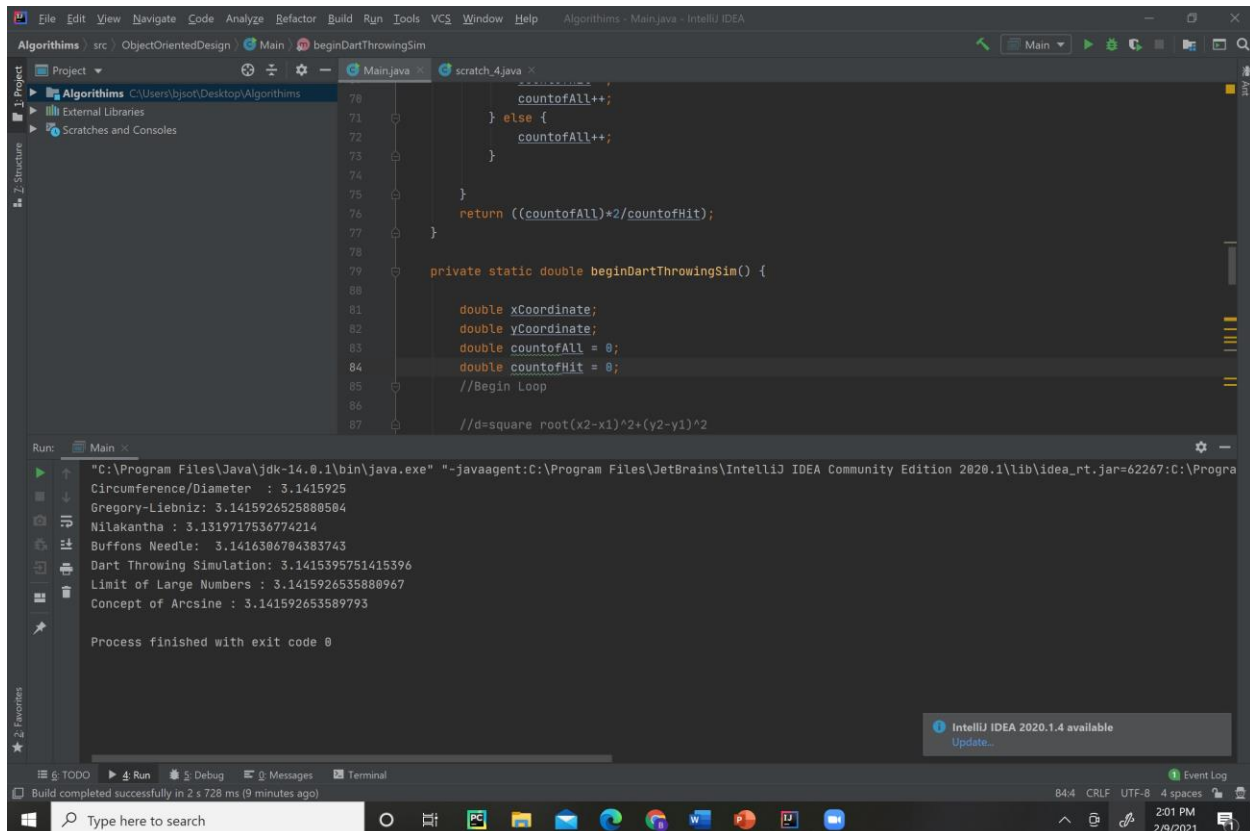


## CSC 310 Algorithms – Assignment 1

## Part A Screenshot:



The screenshot displays the IntelliJ IDEA IDE interface. The main editor window shows a Java file named `scratch_4.java` with the following code:

```
70     } else {
71         countofAll++;
72     }
73     }
74     }
75     }
76     return ((countofAll)*2/countofHit);
77 }
78
79 private static double beginDartThrowingSim() {
80
81     double xCoordinate;
82     double yCoordinate;
83     double countofAll = 0;
84     double countofHit = 0;
85     //Begin Loop
86
87     //d=square root(x2-x1)^2+(y2-y1)^2
```

The Run window at the bottom shows the output of the program:

```
"C:\Program Files\Java\jdk-14.0.1\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2020.1\lib\idea_rt.jar=62267:C:\Progra
Circumference/Diameter : 3.1415925
Gregory-Liebniz: 3.1415926525880504
Nilakantha : 3.1319717536774214
Buffons Needle: 3.1416306704383743
Dart Throwing Simulation: 3.1415395751415396
Limit of Large Numbers : 3.1415926535880967
Concept of Arcsine : 3.141592653589793

Process finished with exit code 0
```

The status bar at the bottom indicates the build completed successfully in 2 s 728 ms (9 minutes ago).

## Part B Reflection:

I was successfully able to get the Algorithms for Circumference and Diameter, the Gregory-Liebniz Series, Dart Throwing Simulation, Limit of Large Numbers Concept and the Concept of Arcsine relatively accurately(First 5 or so digits). However my failures on this assignment would be the Nilakantha Series only got to 3.1319 and while the difference was in the hundredths it was quite noticeable. I tested this code by running it each algorithm with a high number of values to ensure that it got close enough to PI. I new my code worked when I got very near the value of PI.