Deliverable 3

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Problem 5

Reviewed code for:-

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Function: arccos(x)

Code Review Approach used: I used manual code review by importing the code in Eclipse IDE. I started with the naming conventions used, then with the indentation, error handling and finally reviewed the code units(functions) for checking the code modularity. The below review guidelines[1] have been followed while reviewing the code, these are the part of coding conventions that our team decided upon earlier. On top of that, these guidelines also include the project guidelines(like unit tests).

1. **Camel case notation** for naming variables,classes and functions.
2. Class names starts with a **Capital letter**.
3. The opening bracket of a block statement should start in the same line where the block starts.
4. Java docs should be present.
5. Error handling is present.
6. Unit tests are written.
7. Short variable names are used.
8. Descriptive variable names are used.
9. Modularity.(splitting the functionality into smaller units)

Observations

Guideline	Followed?
Camel case notation for naming variables,classes and functions	YES
Class name starts with Capital letter	YES
Indentation is 4 spaces	NO
The opening bracket of a block statement starts in the same line.	YES
Java docs.	YES
Error handling.	YES
Unit tests	YES
Short variable names	YES
Descriptive variable names	YES
Modularity	YES

Recommendations:

The code follows almost all of the guidelines. It is highly readable and easy to understand. It takes care of error handling, unit tests etc..Moreover, the code is modular, that is, it is divided into smaller individual units which are used in the main function for carrying out the task. The only thing that it is missing is 4 spaces indentation guideline. I would recommend using this, because it enhances the readability and understandability of the code.

```
16    try {
17      double input = sc.nextDouble();
18      boolean check = arccosObj.checkDomain(input);
19      double ansInRad;
20      if (check) {
21        ansInRad = arccosObj.calculateArccos(input);
22        System.out.println("Calculated value of Arccos(x) in radians...");
23        ansInRad =  BigDecimal.valueOf(ansInRad).setScale(4, RoundingMode.HALF_UP).doubleValue();
24        System.out.println(ansInRad);
25        double ansInDeg = arccosObj.convertToDegree(ansInRad);
26        System.out.println("Calculated value of Arccos(x) in degrees...");
27        ansInDeg = BigDecimal.valueOf(ansInDeg).setScale(4, RoundingMode.HALF_UP).doubleValue();
28        System.out.println(ansInDeg);
29      } else {
30        System.out.println("Invalid input...");
31      }
32    } catch (InputMismatchException e) {
33      System.out.println("Invalid input...");
34    }
35  }
36  /**
```

Figure 1: Code style used

Problem 7: Testing

Tested code for:-

Hetvi Shah

Student ID: 40089272

Function: tan(x)

Testing Approach used: The code has been tested for all the 13 test cases written by the programmer. All the test cases were passed. Apart from that, I tested the modules for different values including the boundary values. Test cases passed again

Testing environment used: I used Eclipse IDE for running the unit test cases.

Observations: The screenshot below depicts the test cases passing.

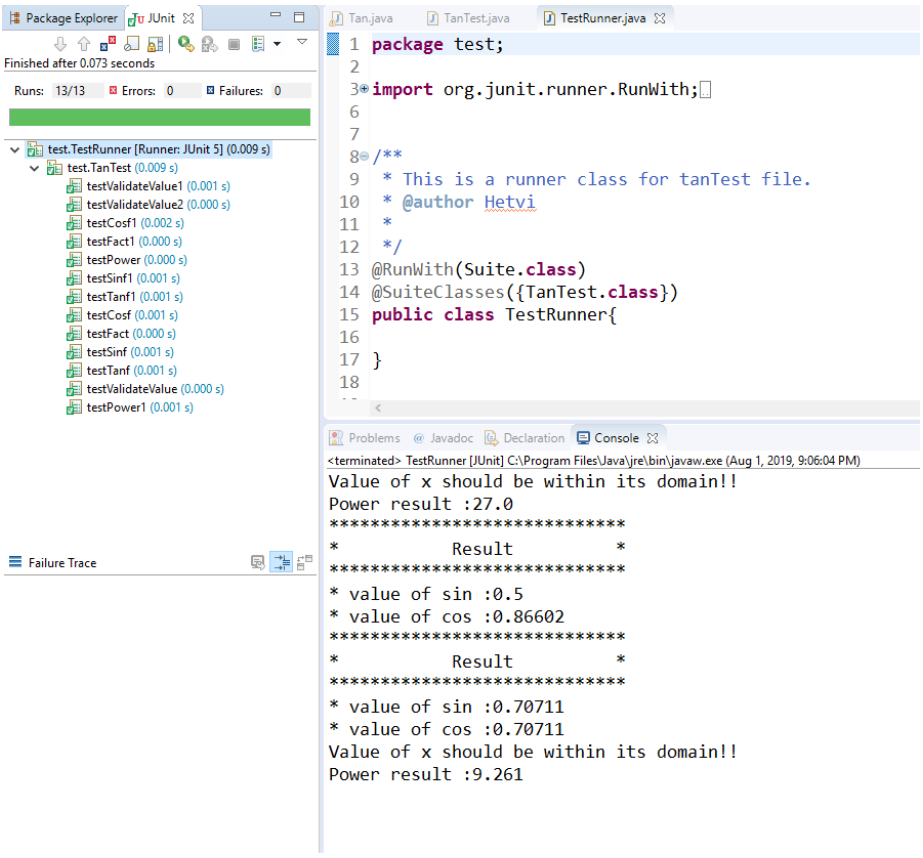

Figure 2: Test Suite

References

[1] smartbear.com. *Best Practices for Code Review*. URL: `https://smartbear.com/learn/code-review/best-practices-for-peer-code-review/`.