

# Think Intensively To Think Critically

Name : Basant Gera\* , Student ID : 40082433 , GitHub URL : [https://github.com/basantiscits/SOEN\\_6011](https://github.com/basantiscits/SOEN_6011), Funcion Assigned : Standard Deviation , Funcion Assigned Problem 5 :F1: arccos x , Funcion Assigned Problem 7 : F2: tan x

Submitted to Pankaj Kamthan\*

Objectives

Objectives for the poster:

- Critical decisions made during the project.
- Explain briefly why those decisions were critical.
- Lesson learnt by doing the project for which function assigned to me  $\sigma$  **Standard Deviation.**
- Lesson learnt by doing the review of function assigned to me in problem 5 **F1: arccos x.**
- Lesson learnt by doing the review of function assigned to me in problem 7 **F2: tan x .**

## Critical decisions made during the project.

Important decision taken are as follows :

- Take Minor Decisions First** : Population Standard devastation of 1 number is not possible.
- Think of the Consequences** :What if variance comes out to be negative.Since its not possible.
- Avoid Mission Impossible And Turn It into Mission Possible** : Making a GUI error prone and giving it a user friendly message was tough to handle.

Population Standard Deviation

$$= \sigma \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

Where n can not be Zero. **Sample Standard Deviation**

$$= \sigma \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

Where n can not be Zero or 1.

- Explain briefly why those decisions were critical
- Take Minor Decisions First** : What happens is we make program and realize that things we need to keep in mind.Due to which we get some error or we need to handle them safely from the user.That’s why from minor decision your program can become robust.
  - Think of the Consequences** :When you know at some point of time things needs to be controlled like for e.g. Variance cant not be negative and Standard deviation can not be 0. Apart from that you need to look what condition for population and sample standard deviation
  - Avoid Mission Impossible And Turn It into Mission Possible** : Many a times situation comes when you have to decide GUI based calculator over textual calculate in java Eclipse IDE.Since making design is some what tough but than textual representation .

Do you know ?

Transcendental functions are of fundamental importance in mathematics, physics, mechanics, and many other fields in science and technology.

## Lesson learnt by doing the project for which function assigned to me $\sigma$ Standard Deviation.

- Learnt Code review** : Using less loop and while loop.Those statements take time.
- Not using in build functions in java** : Making your own functions make you learn new.
- Adding software quality attributes make code better** : Giving java doc,correct spacing and indentation make code readable and understandable.

- Lesson learnt by doing the review of function assigned to me in problem 5 **F1: arccos x.**
- Learned Lambda expression** :Lambda expression is feature of java 8.It is basically express instances of functional interfaces.lambda expressions implement the only abstract function and therefore implement functional interfaces for e.g  $(int x) \rightarrow System.out.println(2 * x);$  .
  - Tried to debug the code in java 8 and learnt debugging in depth** : Tried to use watch point and learnt debug in depth.Got to know some of advantages how debugging works in Eclipse .
  - Learnt to calculate how exponential is calculated wit that learn how inverse of cos works in depth** :Since every one can you Math.pow function in java but how to calculate pow and how inverse of cos works in trigonometric functions .

## Lesson learnt by doing the review of function assigned to me in problem 7 **F2: tan x .**

- Learnt Code review Strategies from req. to end** :Learnt how to review code in JUnit too .
- Learnt chekstyle and use of formatter** :Learnt how google java style works on eclipse .
- Learnt how to calculate tan in java** Learnt how tan works in java without using in built functions.:

Vieta’s Formulas- Task

1. Prove that  $x_1 x_2 = \frac{c}{a}$

Glossary

verb	noun	meaning
add	addition	+
subtract	subtraction	−
multiply	multiplication	·
divide	division	÷
solve	solution	getting answer
substitute	substitution	$t = x^2$

Table 1: Word Formation

Some Necessary and Useful Vocabulary

- (n.) sign  $\rightarrow +$  or  $-$
- (n.) equation  $\rightarrow something = 0$
- (n.) factor  $\rightarrow$  two multiplied factors give result
- (v.) factorise  $\rightarrow$  putting into brackets
- (n.) coefficient  $\rightarrow$  a constant number i.e.  $a, b, c$  in a pattern  $ax^2 + bx + c$
- (n.) quadratic function  $\rightarrow f(x) = ax^2 + bx + c$
- (n.) root  $\rightarrow \sqrt{sth}$  or solution of quadratic equation
- (n.) formula = pattern