

**ANL252**

**Python for Data Analytics**

# **Tutor-Marked Assignment**

**July 2021 Presentation**

**Submitted by:**

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**Submission Date: 15/08/2021**

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Figure 0.1 – Embedded python code for Tutor Marked Assignment.

1. Program code:

import math as m

Text

Description automatically generated

Figure 1.1 – Screenshot of Python software with ‘math’ package installed.

1. Program code:

main = print ("Welcome to the probability density function Program. \nThis program allows you to compute the probability of a normally distributed random variable \ngiven the distribution mean and variance.")

print ("Please follow the instructions below...")

M = float(input("Please enter the mean:") or "0")

if M == "":

M = 0

print (f"You are unsure of the mean, thus it is {M}")

else:

print (f"Your mean is {M}")

V = float(input("Please enter the variance:") or "1")

if V == "":

V = 1

print (f"You are unsure of the variance, thus it is {V}")

else:

print (f"Your variance {V}")

1. Program code:

Xx = float(input("Please enter the value of X: "))

print(f"Your value of X is {Xx}")

print(f"In summary... \nMean = {M} \nVariance = {V} \nX = {Xx}")

1. Program code:

import math as m

fx = float((1/(m.sqrt(2\*m.pi\*V)))\*\*(-((Xx-M)\*\*2)/(2\*V)))

1. Program code:

print (f"fx = {fx}")

1. Program code:

alpha = 0.01

a = -100

Q = (a-alpha)

P = ((Q-alpha)/(a\*fx))

print (f"P = {P}")

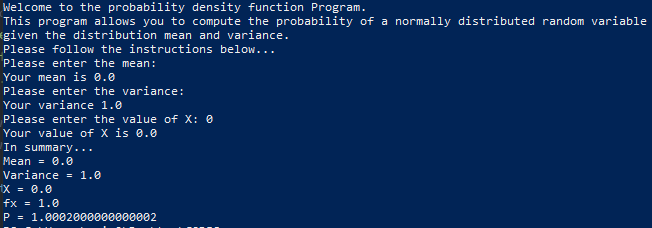


Figure 1.2 – Screenshot of program when k = 0

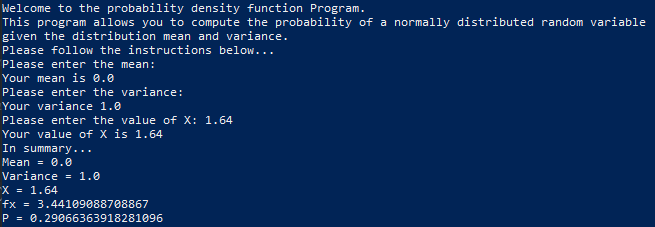


Figure 1.3 – Screenshot of program when k = 1.64

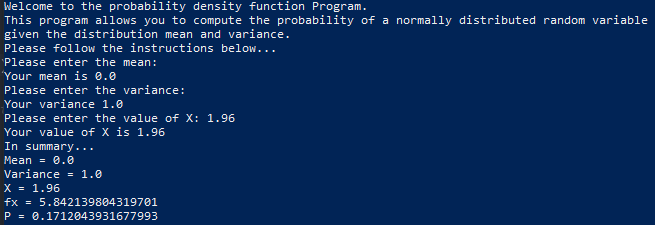


Figure 1.4 – Screenshot of program when k = 1.96

1. The program defines ‘Q’ as the value of ‘a’ minus ‘α’. After which, ‘P’ is defined as the calculation of value ‘Q’ minus ‘α’ divided by ‘a’ multiplied by ‘fx’.