



# ALMOST EVERYTHING CALCULATOR

user manual

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A PYTHON APPLICATION

# INTRODUCTION

Hello! Welcome to the AECalculator user manual! This manual includes all the information you need in order to properly operate the Python Script.

## IMPORTANT!

Make sure to read through the whole manual specially if you are new to programming or new to python in general. Follow the steps to have a smooth operation in using the calculator.



The program includes Exception handlings some factors that may activate these exceptions are:

- Variable input in the requested value (Value Error)
- Variable and integer that is not included in the list input on the command request (Value Error)
- Dividing a zero (Zero Division Error)

When activating these errors the program will revert back to the main menu and will not end the program unless the user inputs the exit command.



# OVERVIEW

AECalculator (Almost Everything Calculator) is made to help students in solving common formulas in subjects like Chemistry and Physics.

# SPECIFICATIONS

The AECalculator has the following Specifications:

1. Choose from either Chemistry Formulas or Physics Formulas.
2. Choose from a variety of formulas that are related to Chemistry and Physics.
3. Solve the chosen Formula with values that are inputted by the user.
4. Return to the Main Menu
5. Exit the Calculator



# **STEPS IN OPERATING THE CALCULATOR**

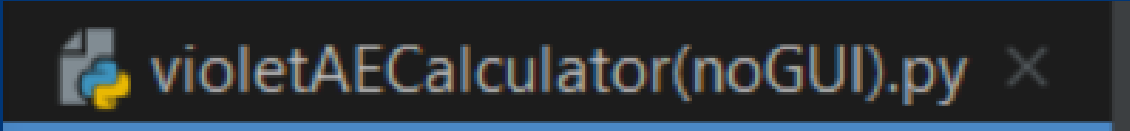
## Step 1: Download CalculatorFormulas.py



CalculatorFormulas.py X

This includes all of the formulas to be used by the Calculator, the calculator will not work if this is not downloaded.

## Step 2: Download AECalculator(NoGUI).py



violetAECalculator(noGUI).py X

This includes all the code for the calculator and will be used for most of the operation.

## Step 3: Choose from the three (3) Commands

```
while True:
    print('Welcome to AECalculator'
          '\n Please input 1 for Chemistry Formulas'
          '\n Please input 2 for Physics Formulas'
          '\n Please input 3 to end the program')
```

By choosing from one of these three commands you will be able to start the calculator and proceed to the formulas within the category or maybe you want to exit the program.



(when input is 1)

## Step 4: Choose from the variety of formulas within the Chemistry Category

```
if choice == 1:
    print('Choose your desired formula'
          '\n Please input 1 for Density'
          '\n Please input 2 for Fahrenheit to Celsius Conversion'
          '\n Please input 3 for Celsius to Fahrenheit Conversion'
          '\n Please input 4 for Celsius to Kelvin Conversion'
          '\n Please input 5 for Kelvin to Celsius Conversion'
          '\n Please input 6 for Boyles Law (P1)'
          '\n Please input 7 for Boyles Law (P2)'
          '\n Please input 8 for Boyles Law (V1)'
          '\n Please input 9 for Boyles Law (V2)'
          '\n Please input 10 for Combined Gas Law (V1)'
          '\n Please input 11 for Combined Gas Law (V2)'
          '\n Please input 12 for Combined Gas Law (P1)'
          '\n Please input 13 for Combined Gas Law (P2)'
          '\n Please input 14 for Combined Gas Law (T1)'
          '\n Please input 15 for Combined Gas Law (T2)'
    )
```

This includes all the formulas that you the user is going to solve.

## Step 5: Input the values of the given variables

```
Mass (M): 1  
Volume (V): 1  
Density is: 1.0
```

The Variables will be given and once the user inputs the values, the Calculator will solve the formula chosen.

(when input is 2)

## Step 4: Choose from the variety of formulas within the Physics Category

```
elif choice == 2:
    print('Choose your Desired Formula'
          '\n Please input 1 for Speed'
          '\n Please input 2 for Velocity'
          '\n Please input 3 for Acceleration'
          '\n Please input 4 for Kinetic Energy'
          '\n Please input 5 for Work'
          '\n Please input 6 for Pressure'
          '\n Please input 7 for Force'
          '\n Please input 8 for Momentum'
          '\n Please input 9 for Power'
          '\n Please input 10 for Volt'
          '\n Please input 11 for Current'
          '\n Please input 12 for Resistance'
          '\n Please input 13 for Coulombs Law'
          '\n Please input 14 for Drift Velocity')
```

This includes all the formulas that you the user is going to solve.

## Step 5: Input the values of the given variables

```
Distance (m): 1  
Time (s): 1  
Speed is: 1.0
```

The Variables will be given and once the user inputs the values, the Calculator will solve the formula chosen.

## Step 6: Returns to the Main Menu

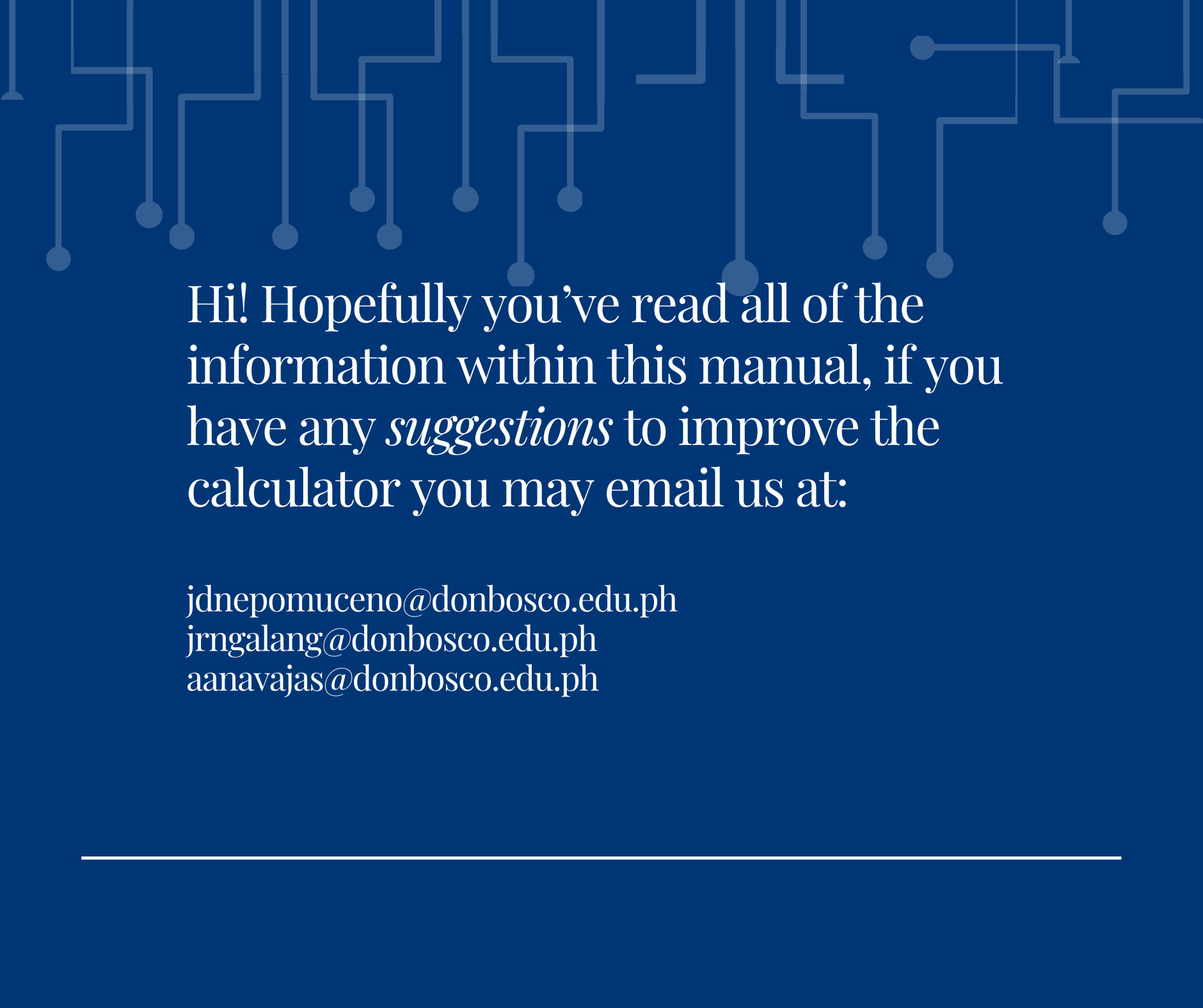
```
Welcome to AECalculator  
Please input 1 for Chemistry Formulas  
Please input 2 for Physics Formulas  
Please input 3 to end the program  
What would you like to solve?:
```

(when input is 3)

## The Program ENDS

```
Thank you for using AECalculator  
  
Process finished with exit code 0
```

## END STATEMENT



Hi! Hopefully you've read all of the information within this manual, if you have any *suggestions* to improve the calculator you may email us at:

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aanavajas@donbosco.edu.ph

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