

1. Create a program that displays your name and complete mailing address. The address should be printed in the format that is normally used in the area where you live. Your program does not need to read any input from the user

```
In [1]: print("Aref Tawana")
print("Department of mathematics")
print("Kabul Polytechnic University")
print("Kabul 6th distrect")
print("Afghanistan")
```

```
Aref Tawana
Department of mathematics
Kabul Polytechnic University
Kabul 6th distrect
Afghanistan
```

2. Write a program that asks the user to enter his or her name. The program should respond with a message that says hello to the user, using his or her name.

```
In [3]: user = str(input("Enter your name: "))
print("Hello and good morning", user)
```

```
Enter your name: aref
Hello and good morning aref
```

3. Write a program that asks the user to enter the width and length of a room. Once these values have been read, your program should compute and display the area of the room. The length and the width will be entered as floating-point numbers. Include units in your prompt and output message; either feet or meters, depending on which unit you are more comfortable working with.

```
In [5]: length = float(input("Enter the length of the room in feet: "))
width = float(input("Enter the width of the room in feet: "))
area = length * width
print("The area of the room is", area, "square feet")
```

```
Enter the length of the room in feet: 23.5
Enter the width of the room in feet: 3.90
The area of the room is 91.64999999999999 square feet
```

1. Create a program that reads the length and width of a farmer's field from the user in feet. Display the area of the field in acres.

```
In [10]: SQFT_PER_ACRE = 43560
length = float(input("Enter the length of the feild in feet: "))
width = float(input("Enter the length of the feild in feet: "))
acres = length * width / SQFT_PER_ACRE
print("The area of the feild is", acres, "acres")
```

```
Enter the length of the feild in feet: 43254.465
Enter the length of the feild in feet: 356.657
The area of the feild is 354.1553655533746 acres
```

1. An online retailer sells two products: widgets and gizmos. Each widget weighs 75 grams. Each gizmo weighs 112 grams. Write a program that reads the number of widgets and the number of gizmos from the user. Then your program should compute and display the total weight of the parts.

```
In [14]: weighs = 75
widgets = int(input("Enter the number of widgets: "))
gizmos = int(input("Enter the number of gizmos: "))
total = widgets * weighs + gizmos * weighs
print("The total weighs is ", total, "gram")
```

```
Enter the number of widgets: 10
Enter the number of gizmos: 4
The total weighs is 1050 gram
```

In []: 10. Create a program that reads two integers, a and b, from the user. Your program should compute and display:

- The sum of a and b
- The difference when b is subtracted from a
- The product of a and b
- The quotient when a is divided by b
- The remainder when a is divided by b
- The result of $\log_{10} a$
- The result of ab

```
In [21]: from math import log10
import numpy as np
a = int(input("Enter the value of a: "))
b = int(input("Enter the value of b: "))
print(a, "+", b, "is", a+b)
print(a, "-", b, "is", a-b)
print(a, "*", b, "is", a*b)
print(a, "/", b, "is", a/b)
```

```
Enter the value of a: 200
Enter the value of b: 300
200 + 300 is 500
200 - 300 is -100
200 * 300 is 60000
200 / 300 is 0.6666666666666666
```

1. In the United States, fuel efficiency for vehicles is normally expressed in miles-per gallon (MPG). In Canada, fuel efficiency is normally expressed in liters-per-hundred kilometers (L/100 km). Use your research skills to determine how to convert from MPG to L/100 km. Then create a program that reads a value from the user in American units and displays the equivalent fuel efficiency in Canadian units.

```
In [23]: # Python program that reads a value from the user in American
# units and displays the equivalent fuel efficiency in Canadian units

miles_per_gallon = int(input("Enter the number of fuel use in America"))
liters_kilometres = int(input("Enter the number of fuel use in Canada "))

mpg = liters_kilometres / 100
print("The number of fuel use is", 'America, unit')
print("The number of fuel use is", 'Canada, unit')
```

```
Enter the number of fuel use in America100
Enter the number of fuel use in Canada 50
The number of fuel use is America, unit
The number of fuel use is Canada, unit
```

1. Consider the software that runs on a self-checkout machine. One task that it must be able to perform is to determine how much change to provide when the shopper pays for a purchase with cash. Write a program that begins by reading a number of cents from the user as an integer. Then your program should compute and display the denominations of the coins that should be used to give that amount of

change to the shopper. The change should be given using as few coins as possible. Assume that the machine is loaded with pennies, nickels, dimes, quarters, loonies and toonies

```
In [ ]: CENTS_PER_TOONIE = 200
CENTS_PER_LOONIE = 100
CENTS_PER_QUARTER = 25
CENTS_PER_DIME = 10
CENTS_PER_NICKEL = 5
cents = int(input("Enter the number of cents: "))
print(" ", cents//CENTS_PER_TOONIE, "toonies")
cents = cents % CENTS_PER_TOONIE
print(" ", cents // CENTS_PER_LOONIE, "loonies")
cents = cents % CENTS_PER_LOONIE
print(" ", cents//CENTS_PER_DIME, "quarters")
cents = cents % CENTS_PER_QUARTER
print(" ", cents % // CENTS_PER_DIME, "dimes")
cents = cents % CENTS_PER_DIME
print(" ", cents//CENTS_PER_NICKEL, "nickels")
cents = cents % CENTS_PER_NICKEL
print(" ", cents, "pennies")
```

```
In [ ]:
```