1)

# Type your code here

x = 5

y = 2.5

print(x + y)

print(y - x)

print(x \* y)

print(x \*\* 2)

print(x // 2)

2)

# Type your code here

my\_list = [1, 2, 3, 4, 5]

my\_list[2] = "hello"

my\_list.append("world")

my\_list.pop(0)

print(my\_list)

3)

# Type your code here

student\_scores = { 'Alice': 85, 'Bob': 90, 'Charlie':78 }

student\_scores['David'] = 88

student\_scores['Alice'] = 95

del student\_scores['Charlie']

print(student\_scores)

4)

# Type your code here

def calculate\_area(width, height):

    return width \* height

area = calculate\_area(5, 10)

print(area)

5)

# Type your code here

class Animal:

    def \_\_init\_\_(self, name):

        self.name = name

    def speak(self):

        print("The animal speaks")

# Dog class inherits from Animal

class Dog(Animal):

    def speak(self):

        print("Woof! Woof!")

# Create an instance of Dog and call its speak method

buddy = Dog("Buddy")

buddy.speak()

6)

\documentclass{article}

\usepackage{graphicx} % Required for inserting images

\title{Problem Set 1 Python and Latex Practice}

\author{Dennis Kwadzode}

\date{September 24, 2024}

\begin{document}

\maketitle

\maketitle

\section{Introduction}

This report covers the solutions to the Python tasks and the associated mathematical explanations.

\section{Python Code}

Below is the Python code for the assignment:

\begin{lstlisting}[language=Python]

def calculate\_area(width, height):

return width \* height

print(calculate\_area(5, 10))

\end{lstlisting}

\section{Mathematical Explanation}

The formula for calculating the area of a rectangle is given by:

\[

A = \text{width} \times \text{height}

\]

where \( A \) is the area, and the width and height are the dimensions of the rectangle.

\section{Conclusion}

This assignment helped me practice basic Python and LaTeX concepts. Some major advantages of using this concepts together are 1) The minimization of human error in transcriptions and updates, which always ensures that documents do reflects the current data. 2) Automation of document creation, which is very useful for generating reports which includes updated data, calculations or results that need to be frequently revised.

\end{document}

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