

**ANL252**

**Python for Data Analytics**

**TMA01**

**July 2023 Presentation**

**Submitted by:**

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**1(a)**

* Coding is considered relatively new in the space of plagiarism, as compared to written words. (Jonathan Bailey, Nov’17)
* Hence many rules on plagiarism applicable to coding, are unclear.
* There is also “open source”, where one can access free and readily available code. (Christine Lee, Jul’20)
* Plagiarism happens when students use codes from “open source” in academic assignments, which demands originality.
* One way to avoid this issue is to use original variable names. (Jonathan Bailey, Nov’17)
* Students should name their variables in relevance to their work, and this not only creates authenticity also aids the students in coding process.
* Another way to avoid plagiarism in coding, is to leave comments. (Jonathan Bailey, Nov’17)
* Leaving comments on the coding workflow, allows students to show their own work, and highlight when code is their own,
* This clears any uncertainty for the teachers marking the assignments.
* In conclusion, coding assignment is no different from written assignment, where proper citation is always appreciated.

(158 words)

**1(b)**

# to write a code managing personal monthly cashflow surplus or shortfall

#inflow

#ask income

income = int(input("What is your monthly take home income?"))

#ask fixed expenses

#mortgage

mortgage = int(input("What is your monthly mortgage repayment?"))

#car loan

car\_loan = int(input("What is your monthly car loan repayment?"))

#income tax

tax = int(input("What is your monthly income tax payment?"))

#insurance

insurance = int(input("What is your monthly insurance premium?"))

#total fixed expenses

total\_fexp = mortgage + car\_loan + tax + insurance

print(f"Your total fixed expenses is {total\_fexp}")

#ask variable expenses

#food

food = int(input("What is your monthly spending for food?"))

#transport

transport = int(input("What is your monthly spending for transport?"))

#utitilies

utilities = int(input("What is your monthly spending for utilities?"))

#family

family = int(input("What is your monthly spending for family needs?"))

#shopping

shopping = int(input("What is your monthly spending for shopping?"))

#travel

travel = int(input("What is your monthly spending for travel?"))

#total variable expenses

total\_vexp = food + transport + utilities + family + shopping + travel

print(f"Your total variable expenses is {total\_vexp}")

#total expenses

total\_exp = total\_fexp + total\_vexp

print(f"Your total monthly expenses is {total\_exp}")

#net cashflow

net\_cf = income - total\_exp

print(f"Your net cashflow is {net\_cf}")

if net\_cf <= 0:

print(f"Your cashflow situation is not ideal.")

elif net\_cf > 0:

print(f"Your cashflow situation is ideal.")

(23 lines, excluding comments)

This piece of python code is written by myself. The purpose of the code is to help individual to keep track of their monthly cashflow to ensure financial wellness. The code starts off by asking for the person’s monthly income input. Next, the person will be asked to input fixed expenses, in tax, insurance, mortgage and car loan, if any. A total of the fixed expenses will be given. Then, the person will input variable expenses around food, transport, utilities, family, shopping, and travel. A total of the variable expenses will also be given. Then, a total expenses value will be provided. By comparing this value with the total fixed and variable expenses, individual will be able to tell which one has higher weightage. The net cashflow will then be calculated and printed. A comment on the person’s net cashflow will also be given if it is ideal or not ideal.

(151 words)

**1(c)**

import numpy as np

import matplotlib.pyplot as plt

import math

# fixed expenses

print("Let's find out more about your monthly fixed expenses first!")

# house loan

house\_loan = int(input("How much is your house loan repayment, if any?"))

#car instalment

car\_instalment = int(input("How much is your car instalments, if any?"))

#income tax

tax = int(input("How much is your income tax payment, if any?"))

#insurance

insurance = int(input("How much is your insurance premium, if any?"))

#total fixed expenses

total\_fexp = house\_loan + car\_instalment + tax + insurance

print(f"Your total fixed expenses is {total\_fexp}")

# variable expenses

print("Next, let's find out more about your monthly variable expenses!")

#food

food = int(input("How much do you spend on food?"))

#transport

transport = int(input("How much do you spend on transport?"))

#utitilies

utilities = int(input("How much do you spend on utilities?"))

#family

family = int(input("How much do you spend on family needs?"))

#shopping

shopping = int(input("How much do you spend on shopping?"))

#travel

travel = int(input("How much do you spend on travel?"))

#total variable expenses

total\_vexp = food + transport + utilities + family + shopping + travel

print(f"Your total variable expenses is {total\_vexp}")

#total expenses

total\_exp = total\_fexp + total\_vexp

print(f"Your total monthly expenses is {total\_exp}")

#pie chart for expenses

texp = np.array([house\_loan, car\_instalment, tax, insurance, food, transport, utilities, family, shopping, travel])

texp\_labels = ["house loan", "car instalment", "tax", "insurance", "food", "transport", "utilities",

"family", "shopping", "travel"]

plt.pie(texp, labels = texp\_labels)

plt.show()

# income

print("Now, let's find out your cashflow situation!")

income = int(input("What is your monthly take home income?"))

#net cashflow

net\_cf = income - total\_exp

print(f"Your net cashflow is {net\_cf}")

if net\_cf <= 0:

print(f"Your cashflow situation is not ideal.")

elif net\_cf > 0:

print(f"Your cashflow situation is ideal.")

**Output**

Let's find out more about your monthly fixed expenses first!

How much is your house loan repayment, if any? 1200

How much is your car instalments, if any? 1500

How much is your income tax payment, if any? 1500

How much is your insurance premium, if any? 2000

Your total fixed expenses is 6200

Next, let's find out more about your monthly variable expenses!

How much do you spend on food? 500

How much do you spend on transport? 500

How much do you spend on utilities? 300

How much do you spend on family needs? 500

How much do you spend on shopping? 300

How much do you spend on travel? 1000

Your total variable expenses is 3100

Your total monthly expenses is 9300

A colorful pie chart with white text

Description automatically generated

Now, let's find out your cashflow situation!

What is your monthly take home income? 10000

Your net cashflow is 700

Your cashflow situation is ideal.

* Compared to the code in 1(b), I rewrote this code to be more interactive for the user.
* In this way, the wordings of the questions are more communicative, with comments.
* The code in 1(b) will sound more robotic, losing a human touch.
* I also rewrote the code to include a pie chart, to display the allocation of the user’s expenses.
* In this manner, the user will have a clearer view of the weightage of each expenditure, and take necessary actions if need be.
* The pie chart allows the user to see visually which expense is taking up more of the income, and can be adjusted for better cash flow, if possible.

(111 words)

Reference:

1. Jonathan Bailey. 8 Nov’2017. Plagiarism and Programming: How to Code Without Plagiarizing. <https://www.turnitin.com/blog/plagiarism-and-programming-how-to-code-without-plagiarizing-2>

2. Christine Lee. 28 Jul’2020. What is Programming Plagiarism? Why is it on the rise? <https://www.turnitin.com/blog/what-is-programming-plagiarism-why-is-it-on-the-rise>