Faculty Name: IT
Qualification Name: FET Certificate: Information Technology: System Development
Programme Name: Programming Foundation
Formative Assessment 1 Paper

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Table of Contents

Formative Assessment 1 Paper

Faculty Name:	Information Technology
Qualification Name:	FET Certificate: Information Technology: System Development
Progarmme Name:	Programming Foundation
Module Name:	Programming with Python Semester 1
Module Code:	PRP411
Hand Out:	13 – 03 – 2023
Hand In:	30 - 03 - 2023
Total Marks:	63
Examiner:	Mr Junior Manganyi
Resources Required:	None

Scenario Question(s)	63 Marks

This Formative Assessment 1 (FA1) contributes 16.77% towards the final mark.

Instruction(s) to Students

1. Ensure that you are writing the correct Formative Assessment.
2. Read each question carefully.

Scenario Question(s) 63 Marks

Study the scenario and complete the question(s) that follow:

Dairy Farm

Meadowdale Dairy Farm specializes in selling organic brown eggs to its local customer base. The farm offers two pricing options: R3.25 for a dozen eggs or 45c for individual eggs that are not part of a dozen. To automate the ordering process, you are tasked with creating a program that prompts the user for the number of eggs they wish to order and calculates the total amount owed, along with a detailed breakdown of the order.

Once the user inputs the number of eggs, the program will calculate how many dozens and individual eggs are included in the order. It will then calculate the total cost by multiplying the number of dozens by the price per dozen and adding the cost of any loose eggs. The program will display the final amount owed, along with a detailed explanation of the order.

As an example, the program's output might be: "You ordered 27 eggs. That's 2 dozen at R3.25 per dozen and 3 loose eggs at 45c each for a total of R7.85."

Save your program as Question1.py for future use.

Source: Java Programming Farell., J (2019).

Question 1

Your program should do the following:

1.1. Prompt the user for the number of eggs. (5 Marks)
1.2. Calculate the number of dozens and loose eggs. (5 Marks)
1.3. Calculate the total cost. (5 Marks)
1.4. Display the final amount owed and order breakdown. (5 Marks)

[Total = 20 Marks]

Your output should like this:

```
How many eggs would you like to order? 300
You ordered 300 eggs. That's 25 dozen at R3.25 per dozen and 0 loose eggs at 45c each for a total of R81.25.
```

End of Question 1

Study the scenario and complete the question(s) that follow:

Prime Factors

A number that is only divisible by itself and 1 is called a prime number, for example 2, 3, 5, 7, 11, 13, and so on. The prime factors of a number are a group of prime numbers that when multiplied together, result in the original number. Therefore, if a number is a divisor of the original number and is also a prime number, it is considered a prime factor of the original number. Prime factorization is the process of finding all of the prime factors of a given number.

To determine the prime factors of the number 1537 using a trial and error approach, we can start by dividing the number by the smallest prime number, which is 2. If 2 is a divisor of the number, we divide the number by 2 and continue dividing by 2 until 2 is no longer a divisor. Then, we move on to the next prime number, which is 3, and repeat the process until we have divided the number by all of its prime factors.

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Source: Mangayi, J. (2023).

Question 2

Write a Python Program that will do the following:

2.1. Initialize the number we want to factorize. (2 Marks)
2.2. Initialize a list to store the prime factors. (2 Marks)
2.3. Use a while loop to determine the prime factors. (2 Marks)
2.4. Print the prime factors. (2 Marks)

[Total = 8 Marks]

End of Question 2

Study the scenario and complete the question(s) that follow:

Multiplication Game

Create a program that allows the user to play a multiplication game. At the beginning of each round, the program randomly selects two numbers from 1 to 10, displays the chosen numbers, and prompts the player to calculate the product of both numbers. If the player correctly answers the question, the program asks if they want to continue playing. This cycle continues until the player makes a mistake or chooses to end the game.

Source: Mangayi, J. (2023).

Question 3

Your Program should do the following:

3.1. Function to generate two random numbers.	(8 Marks)
3.2. Function to prompt the player for the answer	(5 Marks)
3.3. Function to check if the answer is correct.	(5 Marks)
3.4. Function to start the game.	(15 Marks)
3.5. Call the play_game function to start the game.	(2 Marks)
	[Total = 35 Marks]

Your output should look like this:

```
Let's play a multiplication game!

What is the product of 5 and 8?
What is 5 x 8? 40
Correct! Your score is 1
Do you want to play again? (y/n) n
```

End of Question 3