https://github.com/alapmundayoor/dsss_homework_2

Task 3

```
$ git merge code_cleanup
Updating 0b96093..2f1a272
Fast-forward
 math_quiz/math_quiz/math_quiz.py        | 70 +++++++++++++++++++++-------------
 math_quiz/math_quiz/tests_math_quiz.py  | 45 ++++++++++++----------
 2 files changed, 68 insertions(+), 47 deletions(-)
```

```python
import random

def generate_random_integer(min_value, max_value):
    """
    Generates a random integer within the specified range indicated.
    """
    return random.randint(min_value, max_value)

def generate_random_operator():
    """
    Generates a random arithmetic operator (+, -, *).
    """
    return random.choice(['+', '-', '*'])

def perform_operation(num1, num2, operator):
    """
    Performs the arithmetic operation based on the operator.
    Returns a tuple containing the problem expression and the correct answer.
    """
    problem = f"{num1} {operator} {num2}"
    if operator == '+':
        result = num1 + num2
    elif operator == '-':
        result = num1 - num2
    else:
        result = num1 * num2
    return problem, result
```

```python
def math_quiz():
    """
    Conducts a Math quiz with the user, providing random arithmetic questions.
    """
    score = 0 #Initialising score variable
    total_questions = 3

    print("Welcome to the Math Quiz Game!")
    print("You will be presented with math problems, and you need to provide the correct answers.")

    for _ in range(total_questions):
        num1 = generate_random_integer(1, 10)
        num2 = generate_random_integer(1, 5)
        operator = generate_random_operator()

        problem, answer = perform_operation(num1, num2, operator)
        print(f"\nQuestion: {problem}")

        try:
            user_answer = int(input("Your answer: "))
        except ValueError:
            print("Invalid input. Please enter a valid integer.")
            user_answer = 0

        if user_answer == answer:
            print("Correct! You earned a point.")
            score += 1
        else:
            print(f"Wrong answer. The correct answer is {answer}.")

    print(f"\nGame over! Your score is: {score}/{total_questions}")

if __name__ == "__main__":
    math_quiz()
```

Task 4

```python
import unittest
from math_quiz import generate_random_integer, generate_random_operator, perform_operation

class MathGame_Test(unittest.TestCase):

    def test_generate_random_integer(self):
        # Test if random numbers generated are within the specified range
        min_value = 1
        max_value = 10
        for _ in range(1000):  # To test a large number of random values
            rand_num = generate_random_integer(min_value, max_value)
            self.assertTrue(min_value <= rand_num <= max_value)

    def test_generate_random_operator(self):
        # Test if the generated operator is one of '+', '-', or '*'
        Operators = set(['+', '-', '*'])
        for _ in range(1000):  # To test a large number of random values
            random_operator = generate_random_operator()
            self.assertIn(random_operator, Operators)

    def test_perform_operation(self):
        # Testing if the operation has happened successfully.
        test_cases = [
            (5, 2, '+', '5 + 2', 7),
            (8, 3, '-', '8 - 3', 5),
            (4, 6, '*', '4 * 6', 24),
        ]

        for num1, num2, operator, expected_problem, expected_answer in test_cases:
            problem, answer = perform_operation(num1, num2, operator)
            self.assertEqual(problem, expected_problem)
            self.assertEqual(answer, expected_answer)

if __name__ == "__main__":
    unittest.main()
```

Task 5:

```
$ pip install git+https://github.com/alapmundayoor/dsss_homework_2.git
Collecting git+https://github.com/alapmundayoor/dsss_homework_2.git
  Cloning https://github.com/alapmundayoor/dsss_homework_2.git to c:\users\alapm\appdata\local\temp\pip-req-build-bn1rry9r
  Running command git clone --filter=blob:none --quiet https://github.com/alapmundayoor/dsss_homework_2.git 'C:\Users\alapm\AppData\Local\Temp\pip-req-build-bn1rry9r'
  Resolved https://github.com/alapmundayoor/dsss_homework_2.git to commit 919a5673d462990778dbea09fc5db9f9b61ddce5
  Installing build dependencies: started
  Installing build dependencies: finished with status 'done'
  Getting requirements to build wheel: started
  Getting requirements to build wheel: finished with status 'done'
  Preparing metadata (pyproject.toml): started
  Preparing metadata (pyproject.toml): finished with status 'done'
Building wheels for collected packages: math-quiz
  Building wheel for math-quiz (pyproject.toml): started
  Building wheel for math-quiz (pyproject.toml): finished with status 'done'
  Created wheel for math-quiz: filename=math_quiz-1.0.0-py3-none-any.whl size=5257 sha256=ee4d0b977415f857f53a232195d055ce7dc6a9234e4f1f3acb9df1bc620b0b19
  Stored in directory: C:\Users\alapm\AppData\Local\Temp\pip-ephem-wheel-cache-g6bb8h0h\wheels\fc\fb\2e\1ea3c442f20384c77d0f5d08eb41d6b20a1971f131549e2385
Successfully built math-quiz
Installing collected packages: math-quiz
Successfully installed math-quiz-1.0.0
```

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