Task 2 – Part A:

import random

def owzthat\_match(balls\_to\_bowl, wickets\_available):

    runs\_scored = 0

    wickets\_lost = 0

    current\_ball = 1

    print(f"Starting the Owzthat cricket match with {balls\_to\_bowl} balls and {wickets\_available} wickets.")

    while current\_ball <= balls\_to\_bowl and wickets\_lost < wickets\_available:

        print(f"Ball {current\_ball}:")

        batting\_dice = random.choice([1, 2, 3, 4, 6, "owzthat"])

        print(f"Batting dice result: {batting\_dice}")

        if batting\_dice == "owzthat":

            umpire\_dice = random.choice(["bowled", "stumped", "caught", "not out", "no ball", "lbw"])

            print(f"Umpire dice result: {umpire\_dice}")

            if umpire\_dice in ["bowled", "stumped", "caught", "lbw"]:

                print("Out! The batter loses a wicket.")

                wickets\_lost += 1

            elif umpire\_dice == "no ball":

                print("No ball! One run added, and the ball must be bowled again.")

                runs\_scored += 1

            else:

                print("Not out! No wickets lost.")

        else:

            runs\_scored += batting\_dice

            print(f"{batting\_dice} runs added to the total score.")

        current\_ball += 1

    if wickets\_lost == wickets\_available:

        print(f"All wickets lost! Match over.")

    else:

        print(f"All balls bowled! Match over with {runs\_scored} runs scored and {wickets\_lost} wickets lost.")

# Sample match with 10 balls and 2 wickets

owzthat\_match(10, 2)

Output:

Starting the Owzthat cricket match with 10 balls and 2 wickets.

Ball 1:

Batting dice result: 2

2 runs added to the total score.

Ball 2:

Batting dice result: 2

2 runs added to the total score.

Ball 3:

Batting dice result: 6

6 runs added to the total score.

Ball 4:

Batting dice result: 6

6 runs added to the total score.

Ball 5:

Batting dice result: 6

6 runs added to the total score.

Ball 6:

Batting dice result: 4

4 runs added to the total score.

Ball 7:

Batting dice result: 3

3 runs added to the total score.

Ball 8:

Batting dice result: 2

2 runs added to the total score.

Ball 9:

Batting dice result: 2

2 runs added to the total score.

Ball 10:

Batting dice result: 3

3 runs added to the total score.

All balls bowled! Match over with 36 runs scored and 0 wickets lost.

Task 2 – Part B:

import random

def original\_owzthat\_match(balls\_to\_bowl, wickets\_available):

    runs\_scored = 0

    wickets\_lost = 0

    no\_balls = 0  # Count for no balls

    partnership\_runs = 0  # Count for partnership runs

    current\_ball = 1

    while current\_ball <= balls\_to\_bowl and wickets\_lost < wickets\_available:

        batting\_dice = random.choice([1, 2, 3, 4, 6, "owzthat"])

        if batting\_dice == "owzthat":

            umpire\_dice = random.choice(["bowled", "stumped", "caught", "not out", "no ball", "lbw"])

            if umpire\_dice in ["bowled", "stumped", "caught", "lbw"]:

                wickets\_lost += 1

            elif umpire\_dice == "no ball":

                no\_balls += 1

                runs\_scored += 1

            else:

                partnership\_runs = 0

        else:

            runs\_scored += batting\_dice

            partnership\_runs += batting\_dice

        current\_ball += 1

    return runs\_scored, wickets\_lost, no\_balls, partnership\_runs

def variant\_owzthat\_match(balls\_to\_bowl, wickets\_available, partnerships):

    total\_runs = 0

    wickets = 0

    no\_balls = 0  # Count for no balls

    partnership\_runs = 0  # Count for partnership runs

    current\_ball = 1

    current\_partner = 1

    while current\_ball <= balls\_to\_bowl and wickets < wickets\_available:

        batting\_dice = random.choice([1, 2, 3, 4, 6, "owzthat"])

        if batting\_dice == "owzthat":

            umpire\_dice = random.choice(["bowled", "stumped", "caught", "not out", "no ball", "lbw"])

            if umpire\_dice in ["bowled", "stumped", "caught", "lbw"]:

                wickets += 1

                partnership\_runs = 0

                if wickets % partnerships == 0:

                    current\_partner += 1

            elif umpire\_dice == "no ball":

                no\_balls += 1

                partnership\_runs += 1

            else:

                partnership\_runs = 0

        else:

            total\_runs += batting\_dice

            partnership\_runs += batting\_dice

        current\_ball += 1

    return total\_runs, wickets, no\_balls, partnership\_runs

# Simulate the original Owzthat match

original\_runs, original\_wickets, original\_no\_balls, original\_partnership\_runs = original\_owzthat\_match(50, 10)

# Simulate the variant Owzthat match

variant\_runs, variant\_wickets, variant\_no\_balls, variant\_partnership\_runs = variant\_owzthat\_match(50, 10, 5)

# Print summary table

print("{:<25} {:<15} {:<15} {:<15}".format("Metric", "Original Owzthat", "Variant Owzthat", "Difference"))

print("="\*70)

print("{:<25} {:<15} {:<15} {:<15}".format("Total Runs", original\_runs, variant\_runs, variant\_runs - original\_runs))

print("{:<25} {:<15} {:<15} {:<15}".format("Wickets Lost", original\_wickets, variant\_wickets, variant\_wickets - original\_wickets))

print("{:<25} {:<15} {:<15} {:<15}".format("No Balls", original\_no\_balls, variant\_no\_balls, variant\_no\_balls - original\_no\_balls))

print("{:<25} {:<15} {:<15} {:<15}".format("Partnership Runs", original\_partnership\_runs, variant\_partnership\_runs, variant\_partnership\_runs - original\_partnership\_runs))

Output:

Metric Original Owzthat Variant Owzthat Difference

======================================================================

Total Runs 119 107 -12

Wickets Lost 7 7 0

No Balls 4 4 0

Partnership Runs 63 48 -15