import pandas as pd

# Function to check if two time ranges overlap

def times\_overlap(student\_times, course\_times):

    student\_time\_ranges = [tuple(map(str.strip, time.split('-'))) for time in student\_times]

    course\_time\_ranges = [tuple(map(str.strip, time.split('-'))) for time in course\_times]

    for student\_start, student\_end in student\_time\_ranges:

        for course\_start, course\_end in course\_time\_ranges:

            if (course\_start < student\_end and course\_end > student\_start):

                return True

    return False

# Function to check availability

def is\_available(student\_days, student\_times, course\_days, course\_times):

    for day in course\_days:

        if day in student\_days:

            if times\_overlap(student\_times, course\_times):

                return True

    return False

# Load student availability

students\_df = pd.read\_excel('students\_availability.xlsx')

# Load course availability

courses\_df = pd.read\_excel('courses\_availability.xlsx')

# Prepare the results

results = []

# Compare student availability with course schedules

for \_, student in students\_df.iterrows():

    student\_name = student['Student Name']

    student\_days = student['Available Days'].split(', ')

    student\_times = student['Available Times'].split(', ')

    for \_, course in courses\_df.iterrows():

        course\_name = course['Course Name']

        course\_days = course['Course Days'].split(', ')

        course\_times = course['Course Times'].split(', ')

        # Debugging print statements

        print(f"Checking {student\_name} against {course\_name}")

        print(f"Student Days: {student\_days}, Student Times: {student\_times}")

        print(f"Course Days: {course\_days}, Course Times: {course\_times}")

        if is\_available(student\_days, student\_times, course\_days, course\_times):

            results.append({

                'Student Name': student\_name,

                'Course Name': course\_name,

                'Available Days': ', '.join(course\_days),

                'Available Times': ', '.join(course\_times)

            })

# Convert results to DataFrame

results\_df = pd.DataFrame(results)

# Save results to Excel

results\_df.to\_excel('students\_course\_availability.xlsx', index=False)

print("The matching courses have been saved to 'students\_course\_availability.xlsx'.")