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Python coding challenge : Level # 3

Data Analysis with Python

Problem Statement:
You are given a dataset containing information about students' grades in different subjects. Your task is to write a Python program using functions, lists, dictionaries, and if-else statements to perform the following tasks:

You are given a dictionary named "grades" that stores the grades of five students for four subjects: 'Math', 'Science', 'English', and 'History'. Each student's grades are represented by a list of four integers.

Write a function named "average_grade" that takes a student's grades list as input and returns their average grade.

Write a function named "highest_grade_subject" that takes a student's grades list as input and returns the subject in which they scored the highest grade.

Write a function named "passing_students" that takes the "grades" dictionary as input and returns the list of students who passed all four subjects. A student is considered to have passed a subject if their grade is 50 or above.

Write a function named "subject_wise_performance" that takes the "grades" dictionary as input and returns a new dictionary named "performance" containing the average grades for each subject across all students.

Write a function named "students_failed_subject" that takes the "grades" dictionary and a subject name as inputs and returns the list of students who failed in that subject. A student is considered to have failed if their grade is below 50.

Write a function named "overall_performance" that takes the "grades" dictionary as input and returns the student who has the highest average grade across all subjects.

Remember, you can use if-else statements to perform condition checks and make decisions within your functions without using loops.

Use the following data :

```
# Dummy student names
students = ['Alice', 'Bob', 'Charlie', 'David', 'Eva']

# Dummy grades for each student (Math, Science, English, History)
grades = {
   'Alice': [90, 85, 92, 88],
   'Bob': [78, 95, 80, 70],
   'Charlie': [82, 60, 75, 88],
   'David': [65, 70, 68, 75],
   'Eva': [88, 92, 45, 90]
}
```

grades is a dictionary.