Homework 1 on PHP (Basic)

Solve the following problems using PHP.

1. Write a PHP code that calculates the GPA of a student from the marks of 5 different courses stored in an associative array. The array contains course names as keys and corresponding marks (0–100) as values. [*Use BU grading scale, solution is given for this probelm*]

2. Write a PHP code that calculates the GPA and Grade of a student from the marks of 5 different courses stored in an associative array. The array contains course names as keys and corresponding marks (0–100) as values. Show output as below:

```
Course-wise Grade Details:
Math: Marks = 85, Grade = B, Grade Point = 3.0
Physics: Marks = 92, Grade = A, Grade Point = 4.0
...
GPA for 5 courses: 2.60
```

3. Write a PHP code to calculate and display the **GPA** of multiple students based on their marks in several courses. Use a **multidimensional associative array** where each student's name is a key, and the value is another associative array containing course names and marks.

   Hints:

   1. Declare multi-dimensional associate array as below:

   ```
   $students = [
       "Alice" => ["Math" => 90, "Physics" => 85, "English" => 78],
       "Bob"   => ["Math" => 65, "Physics" => 72, "English" => 55],
       "Carol" => ["Math" => 88, "Physics" => 93, "English" => 80],
   ];
   ```

   2. Use two foreach loop to get marks.

Show output as below:

```
Student: Alice
Math: Marks = 90, Grade = A, Grade Point = 4.0
Physics: Marks = 85, Grade = B, Grade Point = 3.0
English: Marks = 78, Grade = C, Grade Point = 2.0
GPA: 3.00
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Student: Bob
Math: Marks = 65, Grade = D, Grade Point = 1.0
Physics: Marks = 72, Grade = C, Grade Point = 2.0
English: Marks = 55, Grade = F, Grade Point = 0.0
GPA: 1.00
```

4. Given a multidimensional associative array of students and their marks in several subjects, write a PHP Code for the following problem:

   - Calculate the average marks for each student.
   - Display the name of the student with the highest average.
   - Calculate and display the average marks for each subject.
   - Find and display the student who scored the highest in each subject.

5. For the previous problem (problem 4): Count how many students got:

   - Grade A+
   - Grade A
   - Grade A-
   - Grade B+
   - Grade B
   - Grade B-
   - Grade C
   - Grade D
   - Grade F

   Provide a summary of how many students fall into each grade category.

6. Write a PHP code that generates a detailed mark sheet for each student:

   - Student name
   - Marks per subject
   - Grades per subject

- GPA
- Pass/Fail status

7. Prctice the following simple problem also:
   a. Find min, max, mean, meadin, average from a given number list.
   b. Find the number of occurences of any number from a list.
   c. Find a given number is even, and odd.
   d. Find a number whether it is prime or not using function.
   e. Find whether a given number is palindrome or not.
   f. Find the sum of digit from a given number.