Lab #4(a)

Lab#4(a) Implement OOP concepts with PHP for following program:
Use Student, Teacher and Subject Class to define relation between each of them. Display the details of the student studying a particular subject under a particular teacher. Use Constructors and Polymorphism.

TAGS USED	ATTRIBUTES USED	DESCRIPTION
<?php ?>	--	The opening and closing tags to denote PHP code blocks. All PHP code goes between these tags.
spl_autoload_register	--	Registers a function as an autoloader, which is called when a class is accessed and not yet defined. It is used to automatically load classes as needed.
__DIR__	--	A magic constant that returns the directory of the current file.
file_exists	--	Checks if a file or directory exists.
require_once	--	Includes and evaluates a specified file only once during a script's execution. It is used to load class files.
echo	--	Outputs one or more strings. It is used to print content to the output
foreach	--	Iterates over arrays and objects and executes a block of code for each element.
if	--	Executes a block of code if a specified condition is true.
public, private, protected	--	Access modifiers used to define the visibility of class properties and methods.
return	--	Exits a function and returns a value to the caller.

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Final Outcome:

```
Student Name: Ameesha Parmar
Subject Name: Math
Teacher Name: Jiya Manek

Student Name: Jency Patel
Subject Name: Science
Teacher Name: Kaushal Nathnani

Student Name: Ridhi Keraliya
Subject Name: History
Teacher Name: Alis Khachar
```

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Code Snippet:

Student.php:

```php
<?php
class Student {
  private $name;
  private $subjects = [];

  public function_construct($name) {
    $this->name = $name;
  }

  public function getName() {
    return $this->name;
  }

  public function addSubject(Subject $subject) {
    $this->subjects[] = $subject;
  }

  public function getSubjects() {
    return $this->subjects;
  }
}
?>
```

Teacher.php:

```php
<?php
class Teacher {
  private $name;
  private $subjects = [];

  public function_construct($name) {
    $this->name = $name;
  }

  public function getName() {
    return $this->name;
  }

  public function addSubject(Subject $subject) {
    $this->subjects[] = $subject;
  }
```

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```php
   public function getSubjects() {
      return $this->subjects;
   }
}
?>
```

Subject.php:

```php
<?php
class Subject {
   private $name;
   private $teacher;

   public function_construct($name, Teacher $teacher) {
      $this->name = $name;
      $this->teacher = $teacher;
   }

   public function getName() {
      return $this->name;
   }

   public function getTeacherName() {
      return $this->teacher->getName();
   }
}
?>
```

Index.php:

```php
<?php
spl_autoload_register(function ($class) {
   $classPath =_DIR_. '/classes/' . $class . '.php';
   if (file_exists($classPath)) {
      require_once $classPath;
   }
});

$teacher1 = new Teacher("Jiya Manek");
$teacher2 = new Teacher("Kaushal Nathnani");
$teacher3 = new Teacher("Alis Khachar");

$mathSubject = new Subject("Math", $teacher1);
$scienceSubject = new Subject("Science", $teacher2);
$historySubject = new Subject("History", $teacher3);
```

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```php
$student1 = new Student("Ameesha Parmar ");
$student2 = new Student("Jency Patel ");
$student3 = new Student("Ridhi Keraliya ");

// Add subjects to students
$student1->addSubject($mathSubject);
$student1->addSubject($scienceSubject);
$student2->addSubject($scienceSubject);
$student3->addSubject($historySubject);

function displayStudentSubjectDetails(Student $student, $subjectName) {
    $subjects = $student->getSubjects();
    foreach ($subjects as $subject) {
        if ($subject->getName() === $subjectName) {
            $studentName = $student->getName();
            $teacherName = $subject->getTeacherName();
            echo "Student Name: {$studentName}<br>";
            echo "Subject Name: {$subjectName}<br>";
            echo "Teacher Name: {$teacherName}<br><br>";
            return;
        }
    }
}

displayStudentSubjectDetails($student1, "Math");
displayStudentSubjectDetails($student2, "Science");
displayStudentSubjectDetails($student3, "History");

?>
```