A new project is allocated and the project name is "Password-Generator ",

You have to add some functionalities which are given below:

1. Generating a random password

• The Password must have the desired length (i.e. Contains 8-16 Characters).

• The Password might use Uppercase/Lowercase letters, Numbers, or Symbols to generate.

• The Randomly generated password is displayed on the console.

• Also, display the length of the password on the console.

2. Check Password Strength:

• The password is at least 8 characters long (8 is often the minimum required length for a decent password).

• The password is at most 16 characters long (16 is considered the maximum length for a good password).

• You have to display the categorize the password on the basis of strength (For Ex. Very weak, Weak, Medium, Strong, And Very Strong).

Hint: Depending on the length, random characters from the password alphabet are selected and combined to form a completely random password based on the user's requirements.

Submission:- Make a repository on GitHub named 'Internship', You have to upload all the projects into it. For this worksheet:- Make a new folder "Password-Generator project" in this repository, upload all the files there, and share the Github link with me through messages.

Submission Deadline: The deadline for the submission is 27-09-2023, at 11:59 PM.

Solution- Password-Generator

```java
import java.security.SecureRandom;

import java.util.Scanner;


public class PasswordGenerator {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);


        // Get user input for password length (between 8 and 16)

        int passwordLength = getUserInput(scanner);


        if (passwordLength >= 8 && passwordLength <= 16) {
```

```java
        // Generate a random password
        String password = generatePassword(passwordLength);
        System.out.println("Generated Password: " + password);
        System.out.println("Password Length: " + password.length());


        // Check and display password strength
        String strength = checkPasswordStrength(password);
        System.out.println("Password Strength: " + strength);
    } else {
        System.out.println("Invalid password length. Please enter a length between 8 and 16.");
    }


    // Close the scanner
    scanner.close();
}


public static int getUserInput(Scanner scanner) {
    int passwordLength;
    do {
        System.out.print("Enter the desired password length (8-16): ");
        while (!scanner.hasNextInt()) {
            System.out.print("Invalid input. Please enter a valid number: ");
            scanner.next();
        }
        passwordLength = scanner.nextInt();
    } while (passwordLength < 8 || passwordLength > 16);
    return passwordLength;
}


public static String generatePassword(int length) {
    String uppercaseLetters = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";
```

```java
        String lowercaseLetters = "abcdefghijklmnopqrstuvwxyz";

        String numbers = "0123456789";

        String symbols = "!@#$%^&*()-_=+[]{}|;:'\"<>,.?/";


        String passwordChars = uppercaseLetters + lowercaseLetters + numbers + symbols;

        SecureRandom random = new SecureRandom();

        StringBuilder password = new StringBuilder();


        for (int i = 0; i < length; i++) {

            int randomIndex = random.nextInt(passwordChars.length());

            password.append(passwordChars.charAt(randomIndex));

        }


        return password.toString();

    }


    public static String checkPasswordStrength(String password) {

        if (password.length() < 8) {

            return "Very Weak";

        } else if (password.length() <= 10) {

            return "Weak";

        } else if (password.length() <= 12) {

            return "Medium";

        } else if (password.length() <= 16) {

            return "Strong";

        } else {

            return "Very Strong";

        }

    }

}
```

Output

PS C:\Users\Ajeet\Desktop\java> javac PasswordGenerator.java

PS C:\Users\Ajeet\Desktop\java> java PasswordGenerator

Enter the desired password length (8-16): 15

Generated Password: j^!FRhQfNIo_ehe

Password Length: 15

Password Strength: Strong

PS C:\Users\Ajeet\Desktop\java>

PS C:\Users\Ajeet\Desktop\java> javac PasswordGenerator.java

PS C:\Users\Ajeet\Desktop\java> java PasswordGenerator

Enter the desired password length (8-16): 8

Generated Password: TPu_bS]$

Password Length: 8

Password Strength: Weak