

## Experiment 16

### Experiment Write-up: Validation of Phone Number and Email ID using Regular Expressions

**1. Objective:** To write a Python program that validates user-inputted phone numbers and email IDs using regular expressions.

**2. Theory:** Regular Expressions (regex) are patterns used to match character combinations in strings. The re module in Python provides functions for working with regex.

- **Phone Number Validation:** The regex pattern checks for different phone number formats, including optional country codes and various separators.
- **Email ID Validation:** The regex pattern ensures that an email contains an @ symbol, a valid domain name, and a valid extension.

#### 3. Algorithm:

1. Import the re module.
2. Define a function validate\_phone() to match the phone number pattern.
3. Define a function validate\_email() to match the email pattern.
4. Prompt the user to enter a phone number and an email ID.
5. Use the functions to validate the inputs.
6. Print whether the inputs are valid or invalid.

#### 5. Program Code:

```
import re
```

```
def validate_phone(phone):
```

```
    phone_pattern = re.compile(r'^(\+?\d{1,3}[-.\s]?)(\(?(\d{3}\)?[-.\s]?)\d{3}[-.\s]?\d{4}$')
```

```
    return bool(phone_pattern.match(phone))
```

```
def validate_email(email):
```

```
    email_pattern = re.compile(r'^[a-zA-Z0-9_+.-]+@[a-zA-Z0-9-]+\.[a-zA-Z0-9-]+$')
```

```
    return bool(email_pattern.match(email))
```

```
def main():  
    phone_number = input("Enter your phone number: ")  
    email_id = input("Enter your email ID: ")  
  
    if validate_phone(phone_number):  
        print("✅ Valid phone number.")  
    else:  
        print("❌ Invalid phone number.")  
  
    if validate_email(email_id):  
        print("✅ Valid email ID.")  
    else:  
        print("❌ Invalid email ID.")  
  
if __name__ == "__main__":  
    main()
```

## 6. Expected Output:

Enter your phone number: 9876543210

✅ Valid phone number.

Enter your email ID: example@gmail.com

✅ Valid email ID.

**7. Conclusion:** The program successfully validates phone numbers and email IDs using regular expressions. It ensures that the inputs conform to standard formats before proceeding.