**Technical Design Document**

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## **Program Description:**

This program allows the user to input personal information including a U.S. phone number, Social Security Number (SSN), and ZIP code. It uses regular expressions to validate whether each piece of input conforms to expected formatting standards. The program then displays whether each input is valid.

## **Functions used in the Program:**

#### 1. Function Name: validate\_phone

Description:  
 Validates a phone number input to ensure it matches one of the acceptable U.S. phone number formats.

Parameters:

* phone (str): The user's phone number input.

Variables:

* pattern (compiled regex): Regular expression pattern to match phone number formats.

Logical Steps:

* Compile a regex pattern that matches:  
  + (123) 456-7890
  + 123-456-7890
  + 1234567890
* Use match() to test the input against the pattern.
* Return True if it matches, otherwise False.

Returns:

* bool: True if the input is a valid phone number format, False otherwise.

#### 2. Function Name: validate\_ssn

Description:  
 Checks if the input SSN is in the standard 123-45-6789 format.

Parameters:

* ssn (str): The user's SSN input.

Variables:

* pattern (compiled regex): Regular expression pattern to match SSN format.

Logical Steps:

* Compile a regex pattern that matches ###-##-####.
* Use match() to test the input.
* Return True if valid, otherwise False.

Returns:

* bool: True if the input matches SSN format, False otherwise.

#### 3. Function Name: validate\_zip

Description:  
 Validates U.S. ZIP codes in either 5-digit format or ZIP+4 format.

Parameters:

* zip\_code (str): The user's ZIP code input.

Variables:

* pattern (compiled regex): Regular expression pattern to match ZIP code formats.

Logical Steps:

* Compile a regex pattern that matches:  
  + #####
  + #####-####
* Use match() to test the input.
* Return True if valid, otherwise False.

Returns:

* bool: True if the input is a valid ZIP code, False otherwise.

#### 4. Function Name: main

Description:  
 Handles user interaction, gathers input, and calls the validation functions. Displays the validation results for each input.

Parameters:

* None

Variables:

* phone (str): User input for phone number
* ssn (str): User input for Social Security Number
* zip\_code (str): User input for ZIP code

Logical Steps:

* Prompt the user to enter their phone number, SSN, and ZIP code.
* Call validate\_phone(), validate\_ssn(), and validate\_zip() with the corresponding inputs.
* Print whether each input is valid.

Returns:

* None

### Logical Steps (Program Flow)

1. Start the program by calling main().
2. Prompt the user to input:  
   * A phone number
   * A Social Security Number (SSN)
   * A ZIP code
3. Each input is passed to its respective validation function.
4. Each function uses a regular expression to check if the format is valid.
5. The results (True/False) are printed to indicate validity of each input.
6. End of program

**Link to my COP2373 repository:** [**here**](https://github.com/mpocrnic/COP2373)

Screenshot of output from running code

