**Technical Design**

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**Program Description:**

This program prompts users to enter a phone number, Social Security Number, and Zip code. Then it validates each by using regular expressions to check whether the formats are correct. Finally, it displays to the user whether each input is valid or not.

**Functions used in the Program (list in order as they are called):**

1. **Function Name:** validate\_phone\_number

**Description:** Validates a U.S. phone number using common formats such as (123) 456-7890, 123-456-7890, and others including optional country code +1.

**Parameters:** phone (string): The phone number input by the user..

**Variables:** pattern (compiled regex): A regular expression object to match various valid phone number formats.

**Logical Steps:**

1. Compile a regex pattern that matches valid U.S. phone number formats.
2. Use pattern.match() to check if the input matches the pattern.
3. Return True if it matches; otherwise return False.

**Returns**: True if valid; False otherwise.

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

**Description:** Validates a Social Security Number in the format XXX-XX-XXXX, where X is a digit.

**Parameters:** ssn (string): The SSN input by the user**.**

**Variables:** pattern (compiled regex): A regex pattern that matches the correct SSN format.

**Logical Steps:**

1. Compile a regex pattern to match XXX-XX-XXXX.
2. Use pattern.match() to check if the SSN matches the pattern.
3. Return True if valid, otherwise return False**.**

**Returns:** True if valid; False otherwise.

**3. Function Name:** validate\_zip\_code

**Description:** Validates a ZIP code in either the 5-digit format 12345 or ZIP+4 format 12345-6789.

**Parameters**: zip\_code (string): The ZIP code input by the user**.**

**Variables:** pattern (compiled regex): A regex that matches valid ZIP code formats.

**Logical Steps:**

1. Compile a regex that matches either 5 digits or 5 digits followed by a hyphen and 4 digits.
2. Match the input against the pattern.
3. Return True if valid, False otherwise.

**Returns:** True if valid; False otherwise.

**4. Function Name:** main

**Description:** Collects input from the user and uses the validation functions to check if each input is valid. Displays the results to the user.

**Parameters**: none

**Variables**:

phone (string): Phone number input from the user.

ssn (string): SSN input from the user.

zip\_code (string): ZIP code input from the user.

**Logical Steps:**

1. Prompt the user to enter a phone number.
2. Prompt the user to enter a Social Security Number.
3. Prompt the user to enter a ZIP code.
4. Call each validation function with the corresponding input.
5. Print whether each input is valid based on the return value of the function.

**Returns:** none

**Logical Steps:**

1. Program starts and calls main().
2. main() prompts the user for a phone number, SSN, and ZIP code.
3. Each value is passed to its corresponding validation function.
4. Each function uses a regular expression to determine if the input is valid.
5. The result of each validation is printed to the user in a readable format.

**Link to your repository:** <https://github.com/liviaar/COP2373.git>

**Output Screenshot:**

**A screenshot of a computer program

AI-generated content may be incorrect.**