**Exercise 6 Technical Design Document**

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**Program Description:**

This program utilizes regular expressions to validate various user inputs. Phone numbers, social security numbers, and zip codes are tested for validity.

**Functions used in the Program (listed in the order they’re called in):**

1. **Function Name:** main( )

**Description:** Gathers user input for all three numbers. Calls individual functions, which display results.

**Parameters:** None

**Variables:**

1. phone = stores user’s phone number as entered
2. social = stores user’s social security number as entered
3. zip\_code = store user’s zip code as entered

**Logical Steps:**

1. gather user input for all three variables
2. call individual functions that test each unique variable for their validity.

**Returns:** None

1. **Function Name:** val\_phone(phone\_number)

**Description:** Checks if the user’s phone number is valid

**Parameters:** phone\_number = the user’s phone number

**Variables:** phone\_pattern = the regular expression for the format of a phone number to compare the user’s data to

**Logical Steps:**

1. An if statement uses re.match to compare the user’s phone number to the specific pattern. This means an end-of-string character is used in the pattern.
   1. If the phone number matches the pattern, a print statement lets the user know their phone number is in a valid format.
   2. If the phone number does not match the pattern, a print statement lets the user know their number was not input with a valid format.

**Returns:** None

1. **Function Name:** val\_social(social\_number)

**Description:** Checks if the user’s social security number is valid

**Parameters:** social\_number = the user’s social security number

**Variables:** social\_pattern = the regular expression for the format of a social security number to compare the user’s data to

**Logical Steps:**

1. An if statement uses re.fullmatch to compare the user’s phone number to the specific pattern. This method does not require the pattern to have an end-of-string character to exactly match a string to the pattern.
   1. If the social number matches the pattern, a print statement lets the user know their social is in a valid format.
   2. If the social security number does not match the pattern, a print statement lets the user know their social was not input with a valid format.

**Returns:** None

1. **Function Name:** val\_zip(zip\_code)

**Description:** Checks if the user’s zip code is valid

**Parameters:** zip\_code = the user’s zip code

**Variables:** zip\_pattern = the regular expression for the format of a zip code

**Logical Steps:**

1. An if statement uses re.fullmatch to compare the user’s phone number to the specific pattern, so no end-of-string character is needed in the pattern.
   1. If the zip code matches the pattern, a print statement lets the user know their zip code was entered in a valid format.
   2. If the zip code does not match the pattern, a print statement lets the user know their zip code was not entered with a valid format.

**Returns:** None

**Program Logical Steps:**

1. Import the regular expression package, re, so that regular-expression abilities can be used in the file
2. Call main
   1. Gathers user data for their phone number, social security number, and zip code.
   2. Calls the individual functions to check whether or not they’re valid.
3. The functions that check for valid data all have a similar format. They take the user’s input as a parameter, then compare that value to the unique pattern for that data type. Depending on whether it matches or not, the function will print either that it matches or doesn’t match.

**Link to Repository:** <https://github.com/VBelous1/COP2373/tree/master/Week%208>

**Output Screenshot:A screen shot of a computer

AI-generated content may be incorrect.**