Lab 5 Source Code below

```python
#----------------------------------------------
# Program Name: lab5.py
# Program Description:
#
#  This programs open and read a file, then calculates
#  the total numbers of below:
#  1. Lines
#  2. Words
#  3. Characters
#  4. Uppercase letters
#  5. Lowercase letters
#  6. Spaces
#  7. Digits
#  8. Sentences
#
# @Author: Sheng Lim
# @Date: 7/16/2023
#--------------------------------------------

import re
from datetime import datetime


def print_program_info():
    name = "Sheng Lim"
    lab_name = "Lab 5 - File Counters"
    current_time = datetime.now()
    current_time_in_request_format = current_time.strftime("%b-%d-%Y %a (%I:%M:%S%p)")

    print("{:16}".format("Name"), ":", "CNET-142", name)
    print("{:16}".format("Lab"), ":", lab_name)
    print("{:16}".format("Current Time"), ":", current_time_in_request_format)


def ask_user_input_filename_and_start_from_here():
    inputFileName = input("What's the input filename? :")
    outputFileName = "output_" + inputFileName

    try:
        with open(inputFileName, "r") as inFile:
            lines = inFile.readlines()

            for i, line in enumerate(lines, 1):
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        line = line.strip()
        print(f"Line {i}: {line}")

    # Count the number of lines in the file
    num_lines = len(lines)
    if num_lines >= 0:
        print("Total number of lines:", num_lines)
    else:
        print("Something is wrong, please check the file.")

    # Count the number of words in the file
    word_count = 0
    for line in lines:
        words = line.strip().split()
        word_count += len(words)

    print("Total number of words:", word_count)

    # Count the number of characters in the file
    char_count = 0
    for line in lines:
        char_count += len(line)

    print("Total number of characters:", char_count)

    # Count the number of below in the file
    #  Uppercase letters
    #  Lowercase letters
    #  Space
    #  Digit
    #  Sentence (by counting '.' and '!' and '?')

    uppercase_count = 0
    lowercase_count = 0
    space_count = 0
    digit_count = 0
    sentence_count = 0

    for line in lines:
        for char in line:
            if char.isupper():
                uppercase_count += 1
            elif char.islower():
                lowercase_count += 1
            elif char.isspace():
                space_count += 1
            elif char.isdigit():
```

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                digit_count += 1
            elif char in ('.', '!', '?'):
                sentence_count += 1

        print("Total number of uppercase letters:", uppercase_count)
        print("Total number of lowercase letters:", lowercase_count)
        print("Total number of spaces:", space_count)
        print("Total number of digits:", digit_count)
        print("Total number of sentences:", sentence_count)

        # Close the file
        inFile.close()

    except IOError:
        print("Error: can't open file", inputFileName)


def main():
    print_program_info()
    ask_user_input_filename_and_start_from_here()


if __name__ == "__main__":
    main()
```

Output as below

```
Name              : CNET-142 Sheng Lim
Lab               : Lab 5 - File Counters
Current Time      : Jul-16-2023 Sun (10:12:52PM)
What's the input filename? :test.txt
Line 1: Python is an interpreted, high-level, general-purpose
Line 2: programming language. Created by Guido van Rossum and
Line 3: first released in 1991, Python's design philosophy
Line 4: emphasizes code readability with its notable use of
Line 5: significant whitespace. Its language constructs and
Line 6: object-oriented approach aim to help programmers
Line 7: write clear, logical code for small and large-scale
Line 8: projects.
Line 9:
Line 10: Python is meant to be an easily readable language.
Line 11: Its formatting is visually uncluttered, and it often
Line 12: uses English keywords where other languages use
Line 13: punctuation. Unlike many other languages, it does
Line 14: not use curly brackets to delimit blocks, and
Line 15: semicolons after statements are optional.
Total number of lines: 15
Total number of words: 94
Total number of characters: 676
Total number of uppercase letters: 10
Total number of lowercase letters: 538
Total number of spaces: 106
Total number of digits: 4
Total number of sentences: 6
```