INEL4206. PASSignment 2:
1000 Points

Write the following two programs **in pure assembly**. You are NOT allowed to use any high level programming language such C/C++, otherwise, your grade will be 0. There are different ways to write pure assembly code and running them. One is to use and *emulator* that you may want to download it from Internet.

Program 1: write a pure assembly program that

a. inputs a string of up to 256 bytes, and
b. looks for any substring that is an integer number, counts them and
c. it adds them up, and
d. prints the number (count) of those substrings as well as the total.

Example: if the program receives the following string,

```
INEL4206 has been 1 of the 15 most challenging courses at
UPRM within the last 15 years. This was discovered two days
ago when 200 students responded to a survey at 8:30PM.
```

it should print:

```
Number of number substrings: 7
Total: 4475
```

Note that 4475 is sum of 4206, 1, 15, 15, 200, 8, and 30.

Note 1: for reading the input and printing the result, define two procedures, call them **`read`** and **`write`**, respectively.

Note 2: for Part b and part c, implement two procedures (no interrupts) and call them **`search_count`** and **`sum`**, respectively.

Note 3: For converting strings to numbers and converting numbers to strings, define **TWO** parameterized procedures, namely ***`convert2Int`*** and **`convert2Str`**, respectively. Procedure ***`convert2Int`*** gets one parameter called **`str`** and converts it to integer. Procedure ***`convert2Str`*** gets one parameter called **`num`** and converts it to string.

Program 2: Add a procedure to your above program that replaces every substring that is an integer number with its reverse.

Example: if the program receives the following string,

```
INEL4206 has been 1 of the 15 most challenging courses at
UPRM within the last 15 years. This was discovered two days
ago when 200 students responded to a survey at 8:30PM.
```

it should print:

```
INEL6024 has been 1 of the 51 most challenging courses at
UPRM within the last 51 years. This was discovered two days
ago when 002 students responded to a survey at 8:03PM.

Number of number substrings: 7
Total: 4475
```

Note. Although the program has replaced all the integer substrings with their reverses, it has used the original numbers to calculate the total.

Other Notes:

- **Your codes should compile and run easily (without any further effort) when we are grading it.**
- You are required to submit
    - your source code,
    - instructions to run it and
    - a flowchart to show your approach

  by **Thursday July 18 at 7:00PM** as a PDF attachment via email to both earzuaga@ece.uprm.edu and ahchinaei@ece.uprm.edu
- **Late submissions are not acceptable.**
- All students will be interviewed on this PASSignemt. The interviews will take place on **Fri, July 19 at 8:00AM** in Amadeus Lab. You must have your code ready in your laptop and be able to run it for different inputs. Moreover, you must be ready for any changes to your code and answering a variety of questions. We expect that each student needs ~30 minutes for the interview.
- **If you cannot pass the interview, you get 0 in the assignment.**