Mips program is starting with file reading with a filename then it stores the data into a buffer.

These are datas in the program:

```
.data
   filestr: .space 224     # filename for input
   buffer: .space 256
   save : .space 256

   zero: .asciiz "zero"
   one: .asciiz "one"
   two: .asciiz "two"
   three: .asciiz "three"
   four: .asciiz "four"
   five: .asciiz "five"
   six: .asciiz "six"
   seven: .asciiz "seven"
   eight: .asciiz "eight"
   nine: .asciiz "nine"
  numbers: .asciiz "0123456789"

.text
.globl main

```

Get input for file name from the user (extra)

read file into a buffer.

Load buffer’s adress into $a0 register.

Then numbers string in the data segment in the program loaded into a register too.

After that first loop is started.

$t5 and $t6 registers used for index control and proceed in the buffer byte one byte.

İn the loop every byte is in the buffer checked for it is number or not

İf it is number load number’s text data into a$ t3 register to adding into text with a labels for every number

Then jump and link (jal) to comp label

Firstly handle with special case that can not solve the other situations

İf the number is in the index that can not control by looking it’s front two index and back two index

İf the number is in the head of the text just contol it’s next two byte for dot and number

İf number’s previous byte has number than it’s not digit

İf number’s next byte has number than it’s not digit

İf number’s previous byte has not number then check it’s next byte if it is dot check it’s next too

İf number’s next byte has not number then check it’s previous byte if it is dot check it’s previous too

After check if its digit go to do

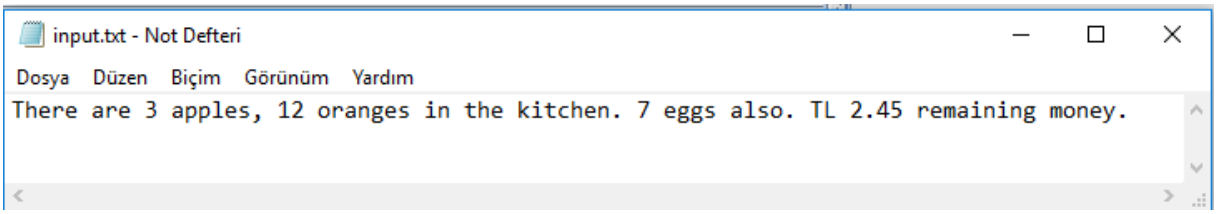
Loop that in the do label load byte’s number’s text into the save adress

Before the store byte check for the head of the sentence with space and dot before the checking byte's two previous byte

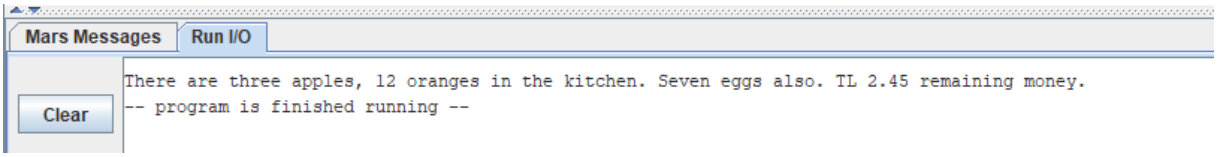
Then jump with back label and go to first loop that finding digit in the buffer so continue to process

Before the ending program write the text into the file and write it console too.

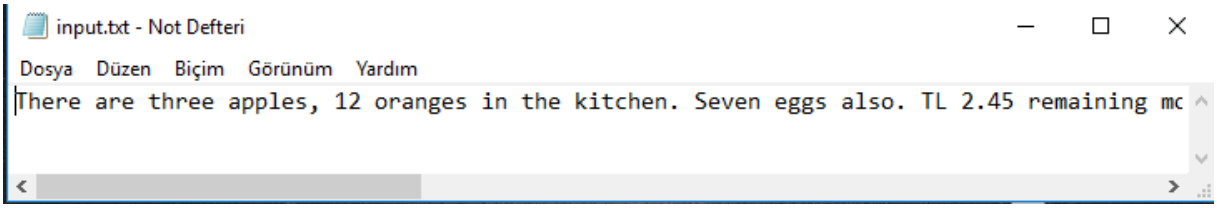
For input that is shown below:



The output is in the console : (extra)



And output is also writing into the file:



According to output two digits numbers not converted to text and if the number is at the head of file it starts with the uppercase letter and also floating points numbers are checked. Example shows the all rules are provided with the program.

Program has a procedure with jal and jr for calculating length to controling end of the string:

```
228 length:
229     addi $t0, $zero, -1 #initialize count
230 loop:
231     lb $t7, 0($a2) #load the next character to t7
232     addi $a2, $a2, 1 #load increment
233     addi $t0, $t0, 1 #increment count
234     beqz $t7, exit #end loop if null character is found
235     j loop # jump to loop
236 exit: jr $ra
```