Scanned exercise:

VAR nr1 : INTEGER , nr2 : INTEGER , gcd : INTEGER

nr1 <- 56

nr2 <- 12

IF nr1 < nr2 THEN gcd <- nr1

ELSE gcd <- nr2

WHILE nr1 % gcd != 0 AND nr2 % gcd != 0 DO gcd <- gcd - 1

WRITE ( gcd )

end\_program

Application solution:

First, the tokens of the language are added in a token map. Then it reads a .txt file with an exercise written in our language. After that, it creates and fills the symbol table by taking each string read from the file. Then it also creates and fills the PIF table. Finally, it prints the two tables.

The functions “number\_check and string\_check” check the given string is an constant.

The function “identifier\_check” checks if the given string is an identifier.

The function “token\_check” checks if the given string is a token.

Expected results:

Symbol table content:

Key = 0, Value = 5

Key = 56, Value = 3

Key = 12, Value = 4

Key = 1, Value = 6

Key = gcd, Value = 2

Key = nr1, Value = 0

Key = nr2, Value = 1

Program Internal Form table:

Key = 56, [Symbol table, Token table] = [3, 1]

Key = 12, [Symbol table, Token table] = [4, 1]

Key = end\_program, [Symbol table, Token table] = [-1, 17]

Key = %, [Symbol table, Token table] = [-1, 33]

Key = VAR, [Symbol table, Token table] = [-1, 4]

Key = (, [Symbol table, Token table] = [-1, 30]

Key = gcd, [Symbol table, Token table] = [2, 0]

Key = ), [Symbol table, Token table] = [-1, 31]

Key = DO, [Symbol table, Token table] = [-1, 8]

Key = nr1, [Symbol table, Token table] = [0, 0]

Key = ,, [Symbol table, Token table] = [-1, 32]

Key = -, [Symbol table, Token table] = [-1, 19]

Key = nr2, [Symbol table, Token table] = [1, 0]

Key = 0, [Symbol table, Token table] = [5, 1]

Key = <-, [Symbol table, Token table] = [-1, 23]

Key = 1, [Symbol table, Token table] = [6, 1]

Key = AND, [Symbol table, Token table] = [-1, 16]

Key = :, [Symbol table, Token table] = [-1, 31]

Key = THEN, [Symbol table, Token table] = [-1, 7]

Key = <, [Symbol table, Token table] = [-1, 24]

Key = !=, [Symbol table, Token table] = [-1, 28]

Key = INTEGER, [Symbol table, Token table] = [-1, 2]