

BBM203: Data Structures Lab  
2021 Fall  
Lab Assignment #3 Report

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# **1 Software Using Documanation**

## **1.1 Software Usage**

My program takes 2 input files. First one is DPDA file. It has information about transition rules, input alphabets, states. Second one has some string as an input. And my program prints all information to the output file. For each input string, my program's output will consist of a trace of program execution.

## **1.2 Error messages**

Error [1]: DPDA description is invalid! The program must check that both of the states given in the transition function are valid states from the  $Q$  set, the input character is a valid character from the input alphabet, and both stack symbols are from the stack alphabet.

# **2 Software Design Notes**

## **2.1 Description of program**

### **2.1.1 Problem**

In this assignment we developed an DPDA. The program accepts a string belonging to a language or rejects a string not belonging to the language. The program is to read a description of a DPDA and one input for it. It will process an input and output the execution path. After processing one string, the program should reset the automata (this includes emptying the stack if necessary) and proceed with the next string.

### **2.1.2 Solution**

First my program reads the input files and stores information using vectors. To do that I have used a function to splitting lines and adding informations to

the vectors. Than using loops I find(match) proper transition rule for every input and every line.And I write each step to the output file.

## **2.2 Algorithm**

Read input files

Store informations in vectors

Create loops and find proper transition rule

Write each line to the output

## **3 Software Testing Notes**

### **3.1 Bugs and software reliability**

As I mentioned before I checked the accuracy of the contents of the files.But other than that I wrote program as if the wrong input will not be entered. As long as there is nothing wrong with the input files, I hope my program will work properly.

## **4 References**

- <https://web.cs.hacettepe.edu.tr/bbm201/>