Secure Web-Based Systems
CS 5339

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Assignment 1 - Report

The objective of this assignment was to create a PHP program that produces exactly the same output as the provided Java program. The PHP program accepts an input file URL, reads the file from the URL, parses the input file according to the provided rules, notifies the user of any parsing errors and executes the statements as specified in the grammar. The output of the Java program was compared to the page source of the webpage rendered by the PHP program.

The PHP webpage can be accessed at following URL:

http://cs5339.cs.utep.edu/sssamant/assignment1/index.php.

The program can handle GET and POST requests. In case of a GET request the program will use an input file located at:

http://cs5339.cs.utep.edu/longpre/assignment1/fall18Testing.txt.

In case of a POST request the program expects a POST variable named "submit" to be set and the input file location should be specified in a POST variable named "txtFileURL".

The program was tested at the program testing website (http://cs5339.cs.utep.edu/longpre/assignment1/te with the following parameters:

URL of the php program: http://cs5339.cs.utep.edu/sssamant/assignment1/index.php

URL of the input file: http://cs5339.cs.utep.edu/longpre/assignment1/fall18Testing.txt

Output of the testing program is shows in Figure 1.

```
<html>
  <head>
    <title>CS 4339/5339 PHP assignment</title>
  </head>
  <body>
    <pre>
section 1
[
   "begin"
   a=227
   if a>456  {
      "asd"
      b=5
      if x<10  {
         "b<10"
      }
   }
   else {
      "23"4"
   }
]
Section result:
begin
23"4

section 2
[
   "begin"
   a=227
   if a<456  {
      "asd"
      b=5
      if x
Parsing or execution Exception: undefined variable

section 3
[
   "hello"
]
Section result:
hello

section 4
[
]
Section result:

section 5
[
   begin
Parsing or execution Exception: equal sign expected

section 6
[
   if
Parsing or execution Exception: identifier expected

    </pre>
  </body>
</html>
```

Score: 100%


```
<html>
  <head>
    <title>CS 4339/5339 PHP assignment</title>
  </head>
  <body>
    <pre>
section 1
[
   "begin"
   a=227
   if a>456  {
      "asd"
      b=5
      if x<10  {
         "b<10"
      }
   }
   else {
      "23"4"
   }
]
Section result:
begin
23"4

section 2
[
   "begin"
   a=227
   if a<456  {
      "asd"
      b=5
      if x
Parsing or execution Exception: undefined variable

section 3
[
   "hello"
]
Section result:
hello

section 4
[
]
Section result:

section 5
[
   begin
Parsing or execution Exception: equal sign expected

section 6
[
   if
Parsing or execution Exception: identifier expected

    </pre>
  </body>
</html>
```


Figure 1: Program testing output

It took me around six hours to finish this assignment.

While most of the assignment was fairly straightforward, a couple of minor issues were encountered. Both issues are specific to PHP language and not necessarily programing issues. The first issue encountered was with enumeration values. The provided Java program uses “IF”, “ELSE” and “INT” as enumeration values for TokenTypes. These values are

reserved keywords in PHP. This issue was resolved by renaming the enumeration values to "IF_TOKEN", "ELSE_TOKEN" and "INT_TOKEN". The second issue encountered was with PHP "strpos" function which returns the start position of a substring in a given string. If the substring is present at position "0", then a loose equivalency operator does not work, because in condition checking PHP converts "0" to false, resulting in false negatives. This issue was resolved using a strict equivalency operator (!==) as specified in the PHP strpos manual (https://secure.php.net/manual/en/function.strpos.php).