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Class/Section: BCS-7 (A)

Subject: CC-Lab (Compiler Construction)

Submission To: Sir Bilal Haider

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CC-Lab Terminal:

Question 3: Give Input and then show its Output.

Answer:

- **★**Lexical analyzer:
- Input 1 & its Output:

```
Form1
                tempString = tempString.replace(
                                                                                                                                                                                                                 tempString = tempString.replace(
                                                                                                                                                                                                                r'pow(10,14-tmpFormat)))) tempString =
                                                                                                                                                                                                                             FID == "BUFFER"): s = value data
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peoOFID == "ASCII_STRING"): s = value d
                                                                                                                                                                                                                   tempString = tempString.repl: Identifier: public
                                                                                                                                                                                                                                public class Main {
            public static void main
                                                                                                                                                                                                                                                                                                                offin Identifier: Main temp.

Punctuation: {
       (String[] args) {
                                                                                                                                                                                                                                   Analyze
                    System.out.println("Hello
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ing.replace("czFieldID", str(ke
OffID == "ASCII_STRING"): s :
tempString = tempString.replace
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pow(18,14-tmpFormat)))) temps

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pow(18,14-tmpFormat))) temps

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) tempString = tempString.repla

Punctuation: {
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```

Input 2 & its Output:

```
Form1
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tempString = tempString.repla

value=" in line and fla

myEve

Punctuation: (

e:

Analyze

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Tof
                                                                                                                                                               G"): s = value d
           >>> print("Hello, World!")
           Hello, World!
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ring replace("czfieldID") str(ko

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                                                                                                             in line and fla
```

• Input 3 & its Output:

```
Form1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tempString = tempStrin
            tempString = tempString.replace(
                                                                                                                                                                                                                                                                          tempString = tempString.replace(
                                       (10,14-tmpFormat)))) tempString
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ffID == "BUFFER"): s = value dataCOUT
                                                                                                                                                                                                                                                               tring.replace("czFieldID", str(key)) to transfer = "ASCII_STRING"): s = value d transfer = tempString.replace("czFieldID", str(key)) to transf
                                                                         SCII_STRING"): s = value d
                                                                                                                                                                                                                                                                                               walues" in line and fla

"Milages" in line: myEya

Identifier: iostream
        #include <iostream>
                                                                                                                                                                                                                                                                       In line: myEve Identifier: using replaced in line: myEve Identifier: using Identifier: name.
        using namespace std;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Identifier: namespace
        int main() {
                                                                                                                                                                                                                                                                                        FID == "BUFFER"): s = value Identifier: std
                cout << "Hello World!";
                                                                                                                                                                                                                                                                        ring.replace("czFieldID", str(ke
pmofFID == "ASCII_STRING"): s ;
) tempString = tempString.repla

Identifier: int
                return 0;
                                                                                                                                                                                                                                                                                              walues" in line and fla Identifier: main
                                                                                                                                                                                                                                                                        in line and fla Identifier: main supplier in line: myEve supplier in line: myE
                                                                                                                                                                                                                                                                        proffID == "BUFFER"): s = value Punctuation: {
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| tempString = tempString.repla
                                                                                                                                                                                                                                                                                                    values" in line and fl.
                                                                                       in line and fla
```

❖LR Parsing:

• Grammar 1:

G -> **S**

S -> aSb

S -> ab

o Test String: aaabbb

```
P LRparsing ×
    "C:\Users\Junaid Computers\AppData\Local\Programs\Python\Python39\python.exe" "C:\Users\
    Enter the name of the file: grammarinput2
    Terminals: ['a', 'b', '#']
    Non-terminals: ['G', 'S']
    Action list
    {0: {'a': 1}, 1: {'a': 1, 'b': 2}, 4: {'b': 5}}
Goto list
    {0: {'S': 3}, 1: {'S': 4}}
    Reduction states
    Accept state 3
    Enter some string: aaabbb
    0 [0] a shift 1
    1 [1, 0] a shift 1
    1 [1, 1, 0] a shift 1
    1 [1, 1, 1, 0] b shift 2
    2 [2, 1, 1, 1, 0] b reduce S -> ab
    4 [4, 1, 1, 0] b shift 5
    5 [5, 4, 1, 1, 0] b reduce S -> aSb
    4 [4, 1, 0] b shift 5
    5 [5, 4, 1, 0] # reduce S -> aSb
    3 [3, 0] # accept
    Process finished with exit code 0
```

• Grammar 2:

G -> **S**

S -> aB

B->aBAB

B ->

A -> +

A -> *

Test string : aa*ab

```
LRparsing ×
Run
    "C:\Users\Junaid Computers\AppData\Local\Programs\Python\Python39\python.exe" "C:\Users\Junaid Com
    Enter the name of the file: grammarinput3
    Non-terminals: ['G', 'S', 'B', 'A']

∃ {0: {'a': 1}, 1: {'a': 2}, 2: {'a': 2}, 5: {'*': 9, '+': 8}, 6: {'a': 2}}

    {0: {'S': 3}, 1: {'B': 4}, 2: {'B': 5}, 5: {'A': 6}, 6: {'B': 7}}
    Reduction states
    {1: ('B', ''),
     2: ('B', ''),
     4: ('S', 'aB'),
     7: ('B', 'aBAB'),
    Accept state 3
    Enter some string: aa*ab
    0 [0] a shift 1
    1 [1, 0] a reduce B ->
    3 [3, 0] a accept
    Process finished with exit code \theta
```

• Grammar 3:

○ Test string : x*x+x

```
Run
       LRparsing ×
G .:
     3: {'*': 7, '/': 8},
     5: {'x': 1},
     6: {'x': 1},
     7: {'x': 1},
     8: {'x': 1},
9: {'*': 7, '/': 8},
     10: {'*': 7, '/': 8}}
⑪
     Goto list
     {0: {'E': 2, 'F': 4, 'T': 3},
     5: {'F': 4, 'T': 9},
     6: {'F': 4, 'T': 10},
     7: {'F': 11},
     8: {'F': 12}}
     Reduction states
     {1: ('F', 'x'),
     2: ('G', 'E'),
     3: ('E', 'T'),
     9: ('E', 'E+T'),
     11: ('T', 'T*F'),
     12: ('T', 'T/F')}
     Accept state 2
     Enter some string: x*x+x
     0 [0] x shift 1
    1 [1, 0] * reduce F -> x
    4 [4, 0] * reduce T -> F
    3 [3, 0] * reduce E -> T
     2 [2, 0] * accept
 inaTutorialsOnPython 🕽 🤔 I Pharsin
```