Republic of the Philippines

BOHOL ISLAND STATE UNIVERSITY

MAIN CAMPUS

COLLEGE OF ENGINEERING AND ARCHITECTURE

*Vision: A premiere S&T university for the formation of world class and virtuous human resource for sustainable development in Bohol and the Country.*

*Mission: BISU is committed to provide quality higher education in the arts and sciences, as well as in the professional and technological fields: undertake research and development, and extension services for the sustainable development of Bohol and the country.*

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**MIDTERM**

**VALID STATEMENT:**

**DFA**

Q0

**;**

**EXPR**

**=**

**IDEN**

Q4

Q3

Q2

Q1

**IDEN**

**EXPR**

**=**

**OTHERS**

**;**

**=**

**OTHERS**

**EXPR**

**;**

**=**

**OTHERS**

**IDEN**

**EXPR**

**IDEN**

**;**

**=**

**OTHERS**

**EXPR**

**IDEN**

**OTHERS**

Q5

**IDEN, =, EXPR, ;**

**STATE TABLE:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **State** | **iden** | **=** | **expr** | **;** | **others** |
| **0** | **1** | **5** | **5** | **5** | **5** |
| **1** | **5** | **2** | **5** | **4** | **5** |
| **2** | **1** | **5** | **3** | **5** | **5** |
| **3** | **5** | **5** | **5** | **4** | **5** |
| **4** | **5** | **5** | **5** | **5** | **5** |
| **5** | **5** | **5** | **5** | **5** | **5** |

**VALID EXPRESSION:**

**DFA**

**SIMPLENO, IDEN**

**OPERATOR**

**SIMPLENO, IDEN**

Q3

Q2

Q1

Q0

**OPERATOR**

**OTHERS**

**IDEN**

**SIMPLENO**

**OTHERS**

**IDEN**

**SIMPLENO**

**OTHERS**

**OPERATOR**

**OTHERS**

Q4

**IDEN, OPERATOR, SIMPLENO, OTHERS**

**STATE TABLE:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **State** | **iden** | **operator** | **simpleno** | **others** |
| **0** | **1** | **4** | **1** | **4** |
| **1** | **4** | **2** | **4** | **4** |
| **2** | **3** | **4** | **3** | **4** |
| **3** | **4** | **2** | **4** | **4** |
| **4** | **4** | **4** | **4** | **4** |

**VALID SIMPLENO:**

**DFA**

**.**

**DIGIT**

**DIGIT**

Q3

Q2

Q1

Q0

**.**

**OTHERS**

**.**

**OTHERS**

**.**

**OTHERS**

**OTHERS**

Q4

**., DIGIT, OTHERS**

**STATE TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **State** | **digit** | **.** | **others** |
| **0** | **1** | **4** | **4** |
| **1** | **1** | **2** | **4** |
| **2** | **3** | **4** | **4** |
| **3** | **3** | **4** | **4** |
| **4** | **4** | **4** | **4** |

**VALID IDENTIFIER:**

**DFA**

**-, ALPHA, DIGIT**

Q1

**-, ALPHA**

Q0

**DIGIT**

**OTHERS**

**OTHERS**

Q4

**STATE TABLE:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **State** | **-** | **alpha** | **digit** | **others** |
| **0** | **1** | **1** | **2** | **2** |
| **1** | **1** | **1** | **1** | **2** |
| **2** | **2** | **2** | **2** | **2** |

**C# SOURCE CODE:**

**using** System;  
**using** System.Collections.Generic;  
  
**namespace** midterm  
{  
    class Program  
    {  
        **char** []save1;  
        string []save2;  
        string []save3;  
          
        **public** **int** splitting(string state\_ment)  
        {  
            //converting string to char array  
            **char** []str = state\_ment.ToCharArray();  
            //to save the delimiter, make a copy  
            **char** []strdup = state\_ment.ToCharArray();  
            save1 = state\_ment.ToCharArray();  
  
            string[]split = state\_ment.Split(**new** **char**[] {'=',';'}, StringSplitOptions.RemoveEmptyEntries);  
              
            var str1 = **new** List <string>(); //vector  
              
            **int** from = 0;  
            **int** testme=0;  
              
              
            //hello=num;  
            //5  
            //  
    //        Console.WriteLine("adding on the list");  
            **foreach**(string ch **in** split)  
            {  
              
    //            Console.WriteLine("string {0}",ch);  
                str1.Add(ch);  
    //            Console.WriteLine("inserting {0}",ch);  
                from = ch.Length+from;  
    //            Console.WriteLine(from);  
                str1.Add(str[from+testme].ToString());  
                testme++;  
                  
            }  
            //testing the List  
            //saving it to public variable  
    //        Console.WriteLine("Transferring");  
            **int** cap = str1.Count;  
            save2 = **new** String[cap];  
            **int** count=0;  
            **foreach**(string gh **in** str1)  
            {  
    //            Console.WriteLine(gh);  
                save2[count] = gh.ToString();  
    //            Console.WriteLine(save2[count]);  
                count++;  
            }   
      
      
  
            return 1;  
        }  
  
  
        **int** check\_simpleno(string simplenum)  
        {  
            **int** state=0;  
            **int** [,]table = **new** **int** [,]   
            {  
                {1,4,4},  
                {1,2,4},  
                {3,4,4},  
                {3,4,4},  
                {4,4,4}  
            };  
            **int** input=0;  
            **int** flag = 0;  
              
            //test simple number function  
            //checking each char if its digits  
            **foreach** (**char** n **in** simplenum)  
            {  
            //    Console.WriteLine(n);  
                **if**(n=='.')  
                {  
                    input = 1;  
        //            Console.WriteLine("state\_1");  
                }  
                **else** **if** (**char**.IsDigit(n))  
                {  
                    input=0;  
        //            Console.WriteLine("state\_0");  
                }  
                **else** {  
                    input=2;  
        //            Console.WriteLine("state\_2");  
                }  
                  
                state = table[state,input];  
                **if**(state==1)  
                {  
                    flag=1;  
                }  
                **else** **if** (state==3)  
                {  
                    flag =1;  
                }  
                **else** {  
                    flag =0;  
                }  
            }  
              
            **if**(flag == 1)  
            {  
//                Console.WriteLine("simplenumber\_accepted");  
                return 1;  
            }  
            **else**  
                {  
            //    Console.WriteLine("simplenumber\_notaccepted");  
                return 0;  
            }  
        }  
  
          
        **int** check\_identifier(string simpleidentifier)  
        {  
        **int** state =0;  
        **int** [,] table = **new** **int** [,]   
        {  
            {1,1,2,2},  
            {1,1,1,2},  
            {2,2,2,2}  
        };  
          
        **int** input;  
        **int** flag=0;  
          
    //    Console.WriteLine("identifier function");  
          
        **foreach** (**char** m **in** simpleidentifier)  
        {  
            **if**(m=='\_')  
            {  
                input=0;  
        //        Console.WriteLine("identifier detects \_ ");  
            }  
            **else** **if** (**char**.IsLetter(m))  
            {  
                input = 1;  
        //        Console.WriteLine("identifier detects letter");  
            }  
            **else** **if** (**char**.IsDigit(m))  
            {  
                input = 2;  
        //        Console.WriteLine("identifier detects digit");  
            }  
            **else** {  
                input =3;  
        //        Console.WriteLine("?");  
            }  
              
            state = table [state,input];  
            **if** (state==1)  
            {  
                flag =1;  
            }  
            **else** {  
                flag = 0;  
            }  
        }  
    //    Console.WriteLine("identifing");  
          
        **if**(flag==1)  
        {  
//            Console.WriteLine("identifier");  
            return 1;  
        }  
        **else** {  
//            Console.WriteLine("Not identifier");  
            return 0;  
        }  
        }  
          
        **int** check\_expression(string expressme)  
        {  
//            Console.WriteLine("New string {0}",expressme);  
            **int** state=0;  
            **int** input;  
            **int** [,] table= **new** **int** [,]   
            {  
                {1,4,1,4},  
                {4,2,4,4},  
                {3,4,3,4},  
                {4,2,4,4},  
                {4,4,4,4}  
            };  
            **char** a='+';  
            **char** b = '-';  
            **char** c = '\*';  
            **char** d = '/';  
            **char** e = '%';  
            string plus = a.ToString();  
            string minus = b.ToString();  
            string multi = c.ToString();  
            string divide = d.ToString();  
            string modul= e.ToString();  
            **int** l = splitting2(expressme);  
            **int** flag = 0;  
              
            **foreach** (string lastme **in** save3)  
            {  
                **if**(check\_identifier(lastme)==1)  
                {  
                    input=0;  
        //            Console.WriteLine("identifier");  
                }  
                **else** **if** (lastme == plus || lastme== minus || lastme == multi || lastme==divide || lastme==modul)  
                {  
                    input=1;  
        //            Console.WriteLine("operator");  
                }  
                **else** **if** (check\_simpleno(lastme)==1)  
                {  
                    input=2;  
        //            Console.WriteLine("simple number");  
                }  
                **else** {  
                    input=3;  
                }  
                state=table[state,input];  
                **if**(state==3)  
                {  
                    flag=1;  
                }  
                **else** {  
                    flag=0;  
                }  
                }  
              
              
            **if** (flag == 1)  
            {  
        //        Console.WriteLine("expressing");  
            return 1;  
            }  
            **else** {  
        //        Console.WriteLine("not expressing");  
                return 0;  
            }  
              
        }  
          
        **int** splitting2(string state\_ment)  
        {  
            Console.WriteLine();  
        //    Console.WriteLine("expression: {0} ",state\_ment);  
            **char** [] str = state\_ment.ToCharArray();  
            string[]split = state\_ment.Split(**new** **char**[] {'+','/','-','\*','%'},StringSplitOptions.RemoveEmptyEntries);  
              
            var str1 = **new** List <string>();  
            str1.Clear();  
            **int** from = 0;  
            **int** testme=0;  
    //        Console.WriteLine("max capacity {0} ",str1.Count);  
              
            //hello=num;  
            //5  
            //  
    //        Console.WriteLine("split array lenght  {0}",split.Length);  
            **foreach**(string ch **in** split)  
            {  
          
    //            Console.WriteLine("string {0} length {1}",ch,ch.Length);  
                str1.Add(ch);  
    //            Console.WriteLine("inserting {0}",ch);  
              
                **if**(from+ch.Length+testme < str.Length)  
                {  
                from = ch.Length+from;  
    //            Console.WriteLine("{0} {1}",from,str[from+testme]);  
                str1.Add(str[from+testme].ToString());  
                testme++;  
                }  
    //            Console.WriteLine("list count {0} from {1} testme {2}",str1.Count,from,testme);  
                  
            }  
        //    Console.WriteLine("data in list str1 {0}",str1.Count);  
                        **int** cap = str1.Count;  
            save3 = **new** String[cap];  
            **int** count=0;  
        //    Console.WriteLine("transferring list count= {0}",str1.Count);  
            **foreach** (string hh **in** str1)  
            {  
            //    Console.WriteLine(hh);  
                save3[count] = hh.ToString();  
        //        Console.WriteLine(save3[count]);  
                count++;  
            }   
            return 1;  
        }  
          
          
        **public** static void Main(string[] args)  
        {  
            Program a = **new** Program();  
              
            **int** [,]table = **new** **int**[,]  
            {  
                {1,5,5,5,5,5},  
                {5,2,5,4,5,5},  
                {1,5,3,5,5,3},  
                {5,5,5,4,5,5},  
                {5,5,5,5,5,5}  
  
            };  
            Console.Write("String: ");  
            string statement;  
            /\*getting the string statement \*/  
            statement = Console.ReadLine();  
              
  
            **int** h=0;  
            **int** state=0;  
            **int** input;  
            **char** eq='=';  
            **char** semi=';';  
            string equall = eq.ToString();  
            string semicol = semi.ToString();  
            **int** flag=0;  
              
            /\*splitting the statement \*/  
            h = a.splitting(statement);  
    //        Console.WriteLine(a.save2.Length);  
    //    valid statement operation  
            **foreach**(string testme **in** a.save2)  
            {  
                **try**{  
        //            Console.ReadKey(true);  
                **if**(a.check\_identifier(testme)==1)  
                {  
                    input=0;  
            //        Console.WriteLine("identifier");  
                } /\*  
                else if (a.check\_simpleno(testme)==1)  
                {  
                    Console.WriteLine("simple number");  
                }\*/  
                **else** **if** (testme == equall)  
                {  
                    input=1;  
            //        Console.WriteLine("equal detected");  
                }  
                **else**  **if** (a.check\_expression(testme)==1)  
                {  
                    input=2;  
            //        Console.WriteLine("expression");  
                }  
                **else** **if**(testme == semicol)  
                {  
                    input=3;  
            //        Console.WriteLine("semi");  
                }  
                **else** **if** (a.check\_simpleno(testme)==1)  
                {  
                    input=5;  
            //        Console.WriteLine("simple number");  
                }  
                **else** {  
                    input=4;  
            //        Console.WriteLine("error detected");  
                }  
                  
                state=table[state,input];  
                **if**(state==4)  
                {  
                    flag =1;  
                }  
                }  
                **catch**(Exception)  
                {  
                    Console.WriteLine(); //error  
                }  
                  
  
            }  
                            **if**(flag==1)  
                {  
                    Console.WriteLine("VALID ASSIGNMENT STATEMENT");  
                }  
                **else** {  
                    Console.WriteLine("INVALID ASSIGNMENT STATEMENT");  
                }  
            // **TODO**: Implement Functionality Here  
              
            Console.Write("Press any key to continue . . . ");  
            Console.ReadKey(**true**);  
        }  
    }  
}**using** System;  
**using** System.Collections.Generic;  
  
**namespace** midterm  
{  
    class Program  
    {  
        **char** []save1;  
        string []save2;  
        string []save3;  
          
        **public** **int** splitting(string state\_ment)  
        {  
            //converting string to char array  
            **char** []str = state\_ment.ToCharArray();  
            //to save the delimiter, make a copy  
            **char** []strdup = state\_ment.ToCharArray();  
            save1 = state\_ment.ToCharArray();  
  
            string[]split = state\_ment.Split(**new** **char**[] {'=',';'}, StringSplitOptions.RemoveEmptyEntries);  
              
            var str1 = **new** List <string>(); //vector  
              
            **int** from = 0;  
            **int** testme=0;  
              
              
            //hello=num;  
            //5  
            //  
    //        Console.WriteLine("adding on the list");  
            **foreach**(string ch **in** split)  
            {  
              
    //            Console.WriteLine("string {0}",ch);  
                str1.Add(ch);  
    //            Console.WriteLine("inserting {0}",ch);  
                from = ch.Length+from;  
    //            Console.WriteLine(from);  
                str1.Add(str[from+testme].ToString());  
                testme++;  
                  
            }  
            //testing the List  
            //saving it to public variable  
    //        Console.WriteLine("Transferring");  
            **int** cap = str1.Count;  
            save2 = **new** String[cap];  
            **int** count=0;  
            **foreach**(string gh **in** str1)  
            {  
    //            Console.WriteLine(gh);  
                save2[count] = gh.ToString();  
    //            Console.WriteLine(save2[count]);  
                count++;  
            }   
      
      
  
            return 1;  
        }  
  
  
        **int** check\_simpleno(string simplenum)  
        {  
            **int** state=0;  
            **int** [,]table = **new** **int** [,]   
            {  
                {1,4,4},  
                {1,2,4},  
                {3,4,4},  
                {3,4,4},  
                {4,4,4}  
            };  
            **int** input=0;  
            **int** flag = 0;  
              
            //test simple number function  
            //checking each char if its digits  
            **foreach** (**char** n **in** simplenum)  
            {  
            //    Console.WriteLine(n);  
                **if**(n=='.')  
                {  
                    input = 1;  
        //            Console.WriteLine("state\_1");  
                }  
                **else** **if** (**char**.IsDigit(n))  
                {  
                    input=0;  
        //            Console.WriteLine("state\_0");  
                }  
                **else** {  
                    input=2;  
        //            Console.WriteLine("state\_2");  
                }  
                  
                state = table[state,input];  
                **if**(state==1)  
                {  
                    flag=1;  
                }  
                **else** **if** (state==3)  
                {  
                    flag =1;  
                }  
                **else** {  
                    flag =0;  
                }  
            }  
              
            **if**(flag == 1)  
            {  
//                Console.WriteLine("simplenumber\_accepted");  
                return 1;  
            }  
            **else**  
                {  
            //    Console.WriteLine("simplenumber\_notaccepted");  
                return 0;  
            }  
        }  
  
          
        **int** check\_identifier(string simpleidentifier)  
        {  
        **int** state =0;  
        **int** [,] table = **new** **int** [,]   
        {  
            {1,1,2,2},  
            {1,1,1,2},  
            {2,2,2,2}  
        };  
          
        **int** input;  
        **int** flag=0;  
          
    //    Console.WriteLine("identifier function");  
          
        **foreach** (**char** m **in** simpleidentifier)  
        {  
            **if**(m=='\_')  
            {  
                input=0;  
        //        Console.WriteLine("identifier detects \_ ");  
            }  
            **else** **if** (**char**.IsLetter(m))  
            {  
                input = 1;  
        //        Console.WriteLine("identifier detects letter");  
            }  
            **else** **if** (**char**.IsDigit(m))  
            {  
                input = 2;  
        //        Console.WriteLine("identifier detects digit");  
            }  
            **else** {  
                input =3;  
        //        Console.WriteLine("?");  
            }  
              
            state = table [state,input];  
            **if** (state==1)  
            {  
                flag =1;  
            }  
            **else** {  
                flag = 0;  
            }  
        }  
    //    Console.WriteLine("identifing");  
          
        **if**(flag==1)  
        {  
//            Console.WriteLine("identifier");  
            return 1;  
        }  
        **else** {  
//            Console.WriteLine("Not identifier");  
            return 0;  
        }  
        }  
          
        **int** check\_expression(string expressme)  
        {  
//            Console.WriteLine("New string {0}",expressme);  
            **int** state=0;  
            **int** input;  
            **int** [,] table= **new** **int** [,]   
            {  
                {1,4,1,4},  
                {4,2,4,4},  
                {3,4,3,4},  
                {4,2,4,4},  
                {4,4,4,4}  
            };  
            **char** a='+';  
            **char** b = '-';  
            **char** c = '\*';  
            **char** d = '/';  
            **char** e = '%';  
            string plus = a.ToString();  
            string minus = b.ToString();  
            string multi = c.ToString();  
            string divide = d.ToString();  
            string modul= e.ToString();  
            **int** l = splitting2(expressme);  
            **int** flag = 0;  
              
            **foreach** (string lastme **in** save3)  
            {  
                **if**(check\_identifier(lastme)==1)  
                {  
                    input=0;  
        //            Console.WriteLine("identifier");  
                }  
                **else** **if** (lastme == plus || lastme== minus || lastme == multi || lastme==divide || lastme==modul)  
                {  
                    input=1;  
        //            Console.WriteLine("operator");  
                }  
                **else** **if** (check\_simpleno(lastme)==1)  
                {  
                    input=2;  
        //            Console.WriteLine("simple number");  
                }  
                **else** {  
                    input=3;  
                }  
                state=table[state,input];  
                **if**(state==3)  
                {  
                    flag=1;  
                }  
                **else** {  
                    flag=0;  
                }  
                }  
              
              
            **if** (flag == 1)  
            {  
        //        Console.WriteLine("expressing");  
            return 1;  
            }  
            **else** {  
        //        Console.WriteLine("not expressing");  
                return 0;  
            }  
              
        }  
          
        **int** splitting2(string state\_ment)  
        {  
            Console.WriteLine();  
        //    Console.WriteLine("expression: {0} ",state\_ment);  
            **char** [] str = state\_ment.ToCharArray();  
            string[]split = state\_ment.Split(**new** **char**[] {'+','/','-','\*','%'},StringSplitOptions.RemoveEmptyEntries);  
              
            var str1 = **new** List <string>();  
            str1.Clear();  
            **int** from = 0;  
            **int** testme=0;  
    //        Console.WriteLine("max capacity {0} ",str1.Count);  
              
            //hello=num;  
            //5  
            //  
    //        Console.WriteLine("split array lenght  {0}",split.Length);  
            **foreach**(string ch **in** split)  
            {  
          
    //            Console.WriteLine("string {0} length {1}",ch,ch.Length);  
                str1.Add(ch);  
    //            Console.WriteLine("inserting {0}",ch);  
              
                **if**(from+ch.Length+testme < str.Length)  
                {  
                from = ch.Length+from;  
    //            Console.WriteLine("{0} {1}",from,str[from+testme]);  
                str1.Add(str[from+testme].ToString());  
                testme++;  
                }  
    //            Console.WriteLine("list count {0} from {1} testme {2}",str1.Count,from,testme);  
                  
            }  
        //    Console.WriteLine("data in list str1 {0}",str1.Count);  
                        **int** cap = str1.Count;  
            save3 = **new** String[cap];  
            **int** count=0;  
        //    Console.WriteLine("transferring list count= {0}",str1.Count);  
            **foreach** (string hh **in** str1)  
            {  
            //    Console.WriteLine(hh);  
                save3[count] = hh.ToString();  
        //        Console.WriteLine(save3[count]);  
                count++;  
            }   
            return 1;  
        }  
          
          
        **public** static void Main(string[] args)  
        {  
            Program a = **new** Program();  
              
            **int** [,]table = **new** **int**[,]  
            {  
                {1,5,5,5,5,5},  
                {5,2,5,4,5,5},  
                {1,5,3,5,5,3},  
                {5,5,5,4,5,5},  
                {5,5,5,5,5,5}  
  
            };  
            Console.Write("String: ");  
            string statement;  
            /\*getting the string statement \*/  
            statement = Console.ReadLine();  
              
  
            **int** h=0;  
            **int** state=0;  
            **int** input;  
            **char** eq='=';  
            **char** semi=';';  
            string equall = eq.ToString();  
            string semicol = semi.ToString();  
            **int** flag=0;  
              
            /\*splitting the statement \*/  
            h = a.splitting(statement);  
    //        Console.WriteLine(a.save2.Length);  
    //    valid statement operation  
            **foreach**(string testme **in** a.save2)  
            {  
                **try**{  
        //            Console.ReadKey(true);  
                **if**(a.check\_identifier(testme)==1)  
                {  
                    input=0;  
            //        Console.WriteLine("identifier");  
                } /\*  
                else if (a.check\_simpleno(testme)==1)  
                {  
                    Console.WriteLine("simple number");  
                }\*/  
                **else** **if** (testme == equall)  
                {  
                    input=1;  
            //        Console.WriteLine("equal detected");  
                }  
                **else**  **if** (a.check\_expression(testme)==1)  
                {  
                    input=2;  
            //        Console.WriteLine("expression");  
                }  
                **else** **if**(testme == semicol)  
                {  
                    input=3;  
            //        Console.WriteLine("semi");  
                }  
                **else** **if** (a.check\_simpleno(testme)==1)  
                {  
                    input=5;  
            //        Console.WriteLine("simple number");  
                }  
                **else** {  
                    input=4;  
            //        Console.WriteLine("error detected");  
                }  
                  
                state=table[state,input];  
                **if**(state==4)  
                {  
                    flag =1;  
                }  
                }  
                **catch**(Exception)  
                {  
                    Console.WriteLine(); //error  
                }  
                  
  
            }  
                            **if**(flag==1)  
                {  
                    Console.WriteLine("VALID ASSIGNMENT STATEMENT");  
                }  
                **else** {  
                    Console.WriteLine("INVALID ASSIGNMENT STATEMENT");  
                }  
            // **TODO**: Implement Functionality Here  
              
            Console.Write("Press any key to continue . . . ");  
            Console.ReadKey(**true**);  
        }  
    }  
}**using** System;  
**using** System.Collections.Generic;  
  
**namespace** midterm  
{  
    class Program  
    {  
        **char** []save1;  
        string []save2;  
        string []save3;  
          
        **public** **int** splitting(string state\_ment)  
        {  
            //converting string to char array  
            **char** []str = state\_ment.ToCharArray();  
            //to save the delimiter, make a copy  
            **char** []strdup = state\_ment.ToCharArray();  
            save1 = state\_ment.ToCharArray();  
  
            string[]split = state\_ment.Split(**new** **char**[] {'=',';'}, StringSplitOptions.RemoveEmptyEntries);  
              
            var str1 = **new** List <string>(); //vector  
              
            **int** from = 0;  
            **int** testme=0;  
              
              
            //hello=num;  
            //5  
            //  
    //        Console.WriteLine("adding on the list");  
            **foreach**(string ch **in** split)  
            {  
              
    //            Console.WriteLine("string {0}",ch);  
                str1.Add(ch);  
    //            Console.WriteLine("inserting {0}",ch);  
                from = ch.Length+from;  
    //            Console.WriteLine(from);  
                str1.Add(str[from+testme].ToString());  
                testme++;  
                  
            }  
            //testing the List  
            //saving it to public variable  
    //        Console.WriteLine("Transferring");  
            **int** cap = str1.Count;  
            save2 = **new** String[cap];  
            **int** count=0;  
            **foreach**(string gh **in** str1)  
            {  
    //            Console.WriteLine(gh);  
                save2[count] = gh.ToString();  
    //            Console.WriteLine(save2[count]);  
                count++;  
            }   
      
      
  
            return 1;  
        }  
  
  
        **int** check\_simpleno(string simplenum)  
        {  
            **int** state=0;  
            **int** [,]table = **new** **int** [,]   
            {  
                {1,4,4},  
                {1,2,4},  
                {3,4,4},  
                {3,4,4},  
                {4,4,4}  
            };  
            **int** input=0;  
            **int** flag = 0;  
              
            //test simple number function  
            //checking each char if its digits  
            **foreach** (**char** n **in** simplenum)  
            {  
            //    Console.WriteLine(n);  
                **if**(n=='.')  
                {  
                    input = 1;  
        //            Console.WriteLine("state\_1");  
                }  
                **else** **if** (**char**.IsDigit(n))  
                {  
                    input=0;  
        //            Console.WriteLine("state\_0");  
                }  
                **else** {  
                    input=2;  
        //            Console.WriteLine("state\_2");  
                }  
                  
                state = table[state,input];  
                **if**(state==1)  
                {  
                    flag=1;  
                }  
                **else** **if** (state==3)  
                {  
                    flag =1;  
                }  
                **else** {  
                    flag =0;  
                }  
            }  
              
            **if**(flag == 1)  
            {  
//                Console.WriteLine("simplenumber\_accepted");  
                return 1;  
            }  
            **else**  
                {  
            //    Console.WriteLine("simplenumber\_notaccepted");  
                return 0;  
            }  
        }  
  
          
        **int** check\_identifier(string simpleidentifier)  
        {  
        **int** state =0;  
        **int** [,] table = **new** **int** [,]   
        {  
            {1,1,2,2},  
            {1,1,1,2},  
            {2,2,2,2}  
        };  
          
        **int** input;  
        **int** flag=0;  
          
    //    Console.WriteLine("identifier function");  
          
        **foreach** (**char** m **in** simpleidentifier)  
        {  
            **if**(m=='\_')  
            {  
                input=0;  
        //        Console.WriteLine("identifier detects \_ ");  
            }  
            **else** **if** (**char**.IsLetter(m))  
            {  
                input = 1;  
        //        Console.WriteLine("identifier detects letter");  
            }  
            **else** **if** (**char**.IsDigit(m))  
            {  
                input = 2;  
        //        Console.WriteLine("identifier detects digit");  
            }  
            **else** {  
                input =3;  
        //        Console.WriteLine("?");  
            }  
              
            state = table [state,input];  
            **if** (state==1)  
            {  
                flag =1;  
            }  
            **else** {  
                flag = 0;  
            }  
        }  
    //    Console.WriteLine("identifing");  
          
        **if**(flag==1)  
        {  
//            Console.WriteLine("identifier");  
            return 1;  
        }  
        **else** {  
//            Console.WriteLine("Not identifier");  
            return 0;  
        }  
        }  
          
        **int** check\_expression(string expressme)  
        {  
//            Console.WriteLine("New string {0}",expressme);  
            **int** state=0;  
            **int** input;  
            **int** [,] table= **new** **int** [,]   
            {  
                {1,4,1,4},  
                {4,2,4,4},  
                {3,4,3,4},  
                {4,2,4,4},  
                {4,4,4,4}  
            };  
            **char** a='+';  
            **char** b = '-';  
            **char** c = '\*';  
            **char** d = '/';  
            **char** e = '%';  
            string plus = a.ToString();  
            string minus = b.ToString();  
            string multi = c.ToString();  
            string divide = d.ToString();  
            string modul= e.ToString();  
            **int** l = splitting2(expressme);  
            **int** flag = 0;  
              
            **foreach** (string lastme **in** save3)  
            {  
                **if**(check\_identifier(lastme)==1)  
                {  
                    input=0;  
        //            Console.WriteLine("identifier");  
                }  
                **else** **if** (lastme == plus || lastme== minus || lastme == multi || lastme==divide || lastme==modul)  
                {  
                    input=1;  
        //            Console.WriteLine("operator");  
                }  
                **else** **if** (check\_simpleno(lastme)==1)  
                {  
                    input=2;  
        //            Console.WriteLine("simple number");  
                }  
                **else** {  
                    input=3;  
                }  
                state=table[state,input];  
                **if**(state==3)  
                {  
                    flag=1;  
                }  
                **else** {  
                    flag=0;  
                }  
                }  
              
              
            **if** (flag == 1)  
            {  
        //        Console.WriteLine("expressing");  
            return 1;  
            }  
            **else** {  
        //        Console.WriteLine("not expressing");  
                return 0;  
            }  
              
        }  
          
        **int** splitting2(string state\_ment)  
        {  
            Console.WriteLine();  
        //    Console.WriteLine("expression: {0} ",state\_ment);  
            **char** [] str = state\_ment.ToCharArray();  
            string[]split = state\_ment.Split(**new** **char**[] {'+','/','-','\*','%'},StringSplitOptions.RemoveEmptyEntries);  
              
            var str1 = **new** List <string>();  
            str1.Clear();  
            **int** from = 0;  
            **int** testme=0;  
    //        Console.WriteLine("max capacity {0} ",str1.Count);  
              
            //hello=num;  
            //5  
            //  
    //        Console.WriteLine("split array lenght  {0}",split.Length);  
            **foreach**(string ch **in** split)  
            {  
          
    //            Console.WriteLine("string {0} length {1}",ch,ch.Length);  
                str1.Add(ch);  
    //            Console.WriteLine("inserting {0}",ch);  
              
                **if**(from+ch.Length+testme < str.Length)  
                {  
                from = ch.Length+from;  
    //            Console.WriteLine("{0} {1}",from,str[from+testme]);  
                str1.Add(str[from+testme].ToString());  
                testme++;  
                }  
    //            Console.WriteLine("list count {0} from {1} testme {2}",str1.Count,from,testme);  
                  
            }  
        //    Console.WriteLine("data in list str1 {0}",str1.Count);  
                        **int** cap = str1.Count;  
            save3 = **new** String[cap];  
            **int** count=0;  
        //    Console.WriteLine("transferring list count= {0}",str1.Count);  
            **foreach** (string hh **in** str1)  
            {  
            //    Console.WriteLine(hh);  
                save3[count] = hh.ToString();  
        //        Console.WriteLine(save3[count]);  
                count++;  
            }   
            return 1;  
        }  
          
          
        **public** static void Main(string[] args)  
        {  
            Program a = **new** Program();  
              
            **int** [,]table = **new** **int**[,]  
            {  
                {1,5,5,5,5,5},  
                {5,2,5,4,5,5},  
                {1,5,3,5,5,3},  
                {5,5,5,4,5,5},  
                {5,5,5,5,5,5}  
  
            };  
            Console.Write("String: ");  
            string statement;  
            /\*getting the string statement \*/  
            statement = Console.ReadLine();  
              
  
            **int** h=0;  
            **int** state=0;  
            **int** input;  
            **char** eq='=';  
            **char** semi=';';  
            string equall = eq.ToString();  
            string semicol = semi.ToString();  
            **int** flag=0;  
              
            /\*splitting the statement \*/  
            h = a.splitting(statement);  
    //        Console.WriteLine(a.save2.Length);  
    //    valid statement operation  
            **foreach**(string testme **in** a.save2)  
            {  
                **try**{  
        //            Console.ReadKey(true);  
                **if**(a.check\_identifier(testme)==1)  
                {  
                    input=0;  
            //        Console.WriteLine("identifier");  
                } /\*  
                else if (a.check\_simpleno(testme)==1)  
                {  
                    Console.WriteLine("simple number");  
                }\*/  
                **else** **if** (testme == equall)  
                {  
                    input=1;  
            //        Console.WriteLine("equal detected");  
                }  
                **else**  **if** (a.check\_expression(testme)==1)  
                {  
                    input=2;  
            //        Console.WriteLine("expression");  
                }  
                **else** **if**(testme == semicol)  
                {  
                    input=3;  
            //        Console.WriteLine("semi");  
                }  
                **else** **if** (a.check\_simpleno(testme)==1)  
                {  
                    input=5;  
            //        Console.WriteLine("simple number");  
                }  
                **else** {  
                    input=4;  
            //        Console.WriteLine("error detected");  
                }  
                  
                state=table[state,input];  
                **if**(state==4)  
                {  
                    flag =1;  
                }  
                }  
                **catch**(Exception)  
                {  
                    Console.WriteLine(); //error  
                }  
                  
  
            }  
                            **if**(flag==1)  
                {  
                    Console.WriteLine("VALID ASSIGNMENT STATEMENT");  
                }  
                **else** {  
                    Console.WriteLine("INVALID ASSIGNMENT STATEMENT");  
                }  
            // **TODO**: Implement Functionality Here  
              
            Console.Write("Press any key to continue . . . ");  
            Console.ReadKey(**true**);  
        }  
    }  
}