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|  |
| **COMPILER CONSTRUCTION** |
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|  |

IGNITE

**LANGUAGE SPECIFICATION**

1. DATA TYPE

|  |  |  |  |
| --- | --- | --- | --- |
| VALUE PART | SYNTAX | EXAMPLES | CLASS PART |
| Vari | Variable identifier  Assignment operator  Integer  terminator | Vari $a = 10;  Vari $b ; | DT |
| Varf | Variable identifier  Assignment operator  Decimal  Terminator | Varf $b =2.5; | DT |
| Varc | variable identifier assignment operator punctuator character constant punctuator terminator | Varc $a = ‘A’; | DT |
| Vars | variable identifier assignment operator punctuator character constant punctuator terminator | Vars $abc = “Compiler”; | DT |

1. OPERATORS
   1. ARITHMETIC OPERATOR

|  |  |
| --- | --- |
| VALUE PART | CLASS PART |
| + | ADDSUB |
| - | ADDSUB |
| \* | MUL |
| / | DIVMOD |
| % | DIVMOD |

* 1. INCREMENT / DECREMENT OPERATOR

|  |  |
| --- | --- |
| VALUE PART | CLASS PART |
| ++ | INCDEC |
| – – | INCDEC |

* 1. ASSIGNMENT OPERATOR

|  |  |
| --- | --- |
| VALUE PART | CLASS PART |
| += | ASSOP |
| – = | ASSOP |
| \* = | ASSOP |
| / = | ASSOP |
| = | EQUAL |

* 1. LOGICAL OPERATOR

|  |  |
| --- | --- |
| VALUE PART | CLASS PART |
| && | AND |
| || | OR |
| ! | NOT |

* 1. RELATIONAL OPERATOR

|  |  |
| --- | --- |
| VALUE PART | CLASS PART |
| > | RELOP |
| < | RELOP |
| >= | RELOP |
| <= | RELOP |
| == | RELOP |
| != | RELOP |

1. LOOPS

|  |  |  |  |
| --- | --- | --- | --- |
| VALUE PART | SYNTAX | EXAMPLES | CLASS PART |
| FOR | For(initialize , condition, Inc/Dec) | For (i = 0 ; i<5 ; i++)  For (j = 0 ; j<5 ; j – –) | FOR\_LOOP |
| WHILE | While (condition)  {  Inc/Dec  } | While (i = 10)  {  i++;  } | WHILE\_LOOP |

1. CONDITIONAL STATEMENT

|  |  |  |  |
| --- | --- | --- | --- |
| VALUE PART | SYNTAX | EXAMPLES | CLASS PART |
| if |  |  | IF\_CON |
| else |  |  | ELSE\_CON |
|  |  |  |  |
|  |  |  |  |

1. PUNCTUATORS

|  |  |
| --- | --- |
| VALUE PART | CLASS PART |
| ; | LINEBREAK |
| ( | SMALL\_BRKT\_OPN |
| ) | SMALL\_BRKT\_CLS |
| { | SCOPE\_BRKT\_OPN |
| } | SCOPE\_BRKT\_OPN |
|  |  |
|  |  |

1. CONSTANT

|  |  |  |  |
| --- | --- | --- | --- |
| VALUE PART | R.E | DFA | CLASS PART |
| Any number | (+,-,null)N+ |  | INT\_CONST |
| Any number with decimal | (+,-,null)N\*. D+ |  | FLOAT\_CONST |
| Any single letter | ‘/(esc char + special)+(any char except special char)’ |  | CHAR\_\_CONST |
| Group of letters | “[/(esc char + special char)+(any char except special char)]\*” |  | STRING\_CONST |

1. IDENTIFIER / VARIABLES
   1. LETTERS

e.g. $a

aa

* 1. LETTER THEN NUMBER

e.g. $a1

$abc2

* 1. LETTER AND DIGITS WITH SINGLE UNDERSCORE

e.g. $\_a

$\_abc1

REGULAR EXPRESSION = L+ D\* L\*

1. COMMENTS

|  |  |
| --- | --- |
| COMMENT SYMBOL | CLASS PART |
| <!-- COMMENT --> | COMMENT |

1. KEYWORDS

|  |  |
| --- | --- |
| **KEY WORDS** | **CLASS PART** |
| BEGIN | BEGIN |
| FINISH | FINISH |
| SETOF | ARRAY |
| VOID | VOID |
| TURNIN | INPUT |
| TURNOUT | OUTPUT |
| AS | FOR\_LOOP |
| SINCE | WHILE\_LOOP |
| ALTHOUGH | DOWHILE\_LOOP |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |