

Chapter-3

Lexical Elements of JAVA

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* Grammar

- Two Types

- Lexical - starting point
- Syntactic - sequence

* Character Set used in JAVA program

- Alphabets of programming
- unicode character

* Character Encoding

- Representation of a character
- Encoding Method
 - ASCII
 - EBCDIC
 - UCS

- To solve above three problem unicode was designed.

⇒ Unicode

- universal encoded character set that allows to store information from any language using a single character.

⇒ Code point

- code value representing a character in a particular encoding scheme
- for unicode, written in hexadecimal

Three common way to encode character

- UTF-32

- UTF-16

- UTF-8

* Escape Sequences

- ~~Any~~ alphan

- Printable or Graphic character

- Alphabet, digit, symbol, blank space

- Non-printable

- Enter, backspace, Tab

- To include non-printable character in program, escape sequence is used.

- backslash (\) is used to represent escape sequence

- Allows three type of sequence

- Simple

- Octal

- Unicode

- Blank, newline, horizontal tab and form feed known as white space.

* Identifiers

- named entities

- variable, data type or Method

- consist of letter or digit

- starts with underscore (optional)

- case sensitive

- used to represent

- variable
- literals
- Method
- labels
- package

* Keywords

- have a standard, predefined, special meaning in JAVA
- used for intended purpose
- cannot used for user defines
- formed using lower case

* Concept of Data

- collection of fact, numbers or symbol
- literal is a quantity that remains unchanged during the execution
- variable is an identifier used as a name for memory location of the data storage.
- variables of two value
 - lvalue \rightarrow memory location
 - rvalue \rightarrow value

* Data types

- refers to kind of data used in program.

- JAVA is strongly typed language
 - each & every expression has a known data type
 - help in detecting error
- Reference type
 - class type
 - interface type
 - array type
 - object
 - String
- primitive to reference, boxing
- reference to primitive, unboxing

* Declaration of Scalar Variable

- data of scalar type
- variable declaration statement fixes the name and data type of the variable
- it defines

* Lexical Elements

- includes:
 - Comments
 - Whitespace
 - Tokens
- Comments & whitespace are ignored by compiler

* Comments

- Regular
- single line
- Documentation

* White Space

- separate token
- improve readability

* Blank space

- \n \r \t \f

* Token

- identifiers
- keyword
- literals
- punctuators
- operators

* Literals

- logical
- Arithmetic
- Numeric
- String
- Null

* Separators or Punctuators
- Terminates a statement in a program.