Programming Language

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Command: is a single instruction given to computer to perform one single task.

Program: is a squenced set of instructions that is a solution to any problem.

Programming: is a technique of writing programs according to a certain set of rules

Programming Language: is a combination of

character set a-z/A-Z

digits 0-9

symbols all available on K/B

syntax writing style of any command

semantics meaning assigned to any command

Types

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High Level Language - User understandable format ---> C /C++/Java/.Net/PHP/C#

Interpreter / Compiler

Low Level Language - Machine understandable format ---> Machine Language/Assembly Language

C is procedural programming language - Process Oriented Approach

C++ is an impure object oriented programming langauge - Object Oriented Approach (Partially)

Java is a pure object oriented programming language

Object is an identifiable thing that exists and is distinguishable. It has certain properties and behavior.

Class is a group of similar objects. It is a common definition of all objects. It act as a template for all the objects.

Vehicle

Pulled Vehicle Engine Driven Vehicle

Man Pulled Vehicle Animal Pulled Vehicle Petrol Diesel Gas EMV

Bicycle Rickshaw Bullock Cart Tonga car jeep

Object is a Single Item

Class is a Group of Items

Structure of a java program

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1 Comment -Suggested

2 Package Statement -optional/By Default

3 Import Statement -optional

4 Interface Definition -optional

5 Class Definition -optional

6 Main method class -Compulsary

/\* A Sample Program\*/ -------------- Multiple line comment

// Single line comment

package Demo; ----- package statement

public class Sample ------------ class definition

{

public static void main(String[] args)

{

System.out.print("Hello"); --------------- output statement

}

}

class - is a reserved word

Sample is a class name

public is an access specifier

static member is a class level member / common to all the objects

void(empty) no return type

main() Compulsary method name and the execution start from it

String[] args/ String a[] Command line arguement

String is a inbuilt class name (series of character)

a[] dynamic array

System class name

out object name

print method

print() will print and remain in same line

println() will print and goto next line

Data Types

Integer Values

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byte 1 byte new

short 2 bytes

int 4 bytes Default

long 8 bytes

Real Values

---------------

float 4 bytes

double 8 bytes Default

Character Values

----------------------

char 2 bytes

Boolean Values

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boolean 1 bit new

int x; float a;

long y; double b;

x=6; correct a=2.5; wrong a=2.5f; correction

y=9;correct b=3.6; correct

Variable is a value that may change during program execution

Constant is a value that will remain same during program execution

Control Structures

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Conditional Statements

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1. if statement

if(condition)

statement;

2. if else statement

if(condition)

statement1;

else

statement2;

3. Nested if statement -- And logic

if(condition1)

if(condition2)

statement1;

else

statement2;

else

statement3;

------------------------------------------------------------

Decision Table

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Condition1 Condition2 Result

True True Statement1

True False Statement2

False ----- Statement3

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4. Series if statement -- Or Logic

if(condition1)

statement1;

else

if(condition2)

statement2;

else

if(condition1)

statement3;

else

5. if else block

if(condition)

{ //if block

st1

st2

st3

}

else

{ //else block

st4

st5

st6

}

6. Switch Statement ------ Later

Operators

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1. Binary Operator: 2 operands

a. Arithmatic Operator: +, -, /, \*

b. Relational Operator: <, >, <=, >=, ==(Comparison/Equality) , !=(Not Equal To)

c. Logical Operator: AND && OR || NOT !

d. Assignment Operator: =

Special Assignment Operator

+= a=a+5

-+ a+=5

\*=

/=

e. Modulous Operator: %

This is used to find remainder

2. Unary Operators: 1 Operand

a. Increment Operator ++

Postfix notation a++; a=a+1;

Prefix notation ++a;

b. Decrement Operator --

3. Ternary operator: 3 Operands

a. Conditional Operator ?(true part) :(false part)

c=a>b?a:b;

d=a>b?(a>c?a:c):(b>c?b:c);