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Note :- 1) A variable can hold only one value

2) Variable hold most recent value

3) Every variable must declare

4) A variable is declared only once

5) JAVA does Not support Concept of garbage value

6) JAVA does Not support local UNINITIAL variable

7) JAVA support Concept of default value

1)
```
int a = 10;
a = 40;
a = 7;
SOPL(a);   ⇒ (7)
```

2)
```
int a = 10;
int b = a x a;
SOPL(b);
```
o/p 100

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3) int a = 10;
b = a * a;
sopl(b); → C.T. Error

4) int a = 10;
sw a = 40; ⇒ C.T. Error
sopl(a);

C language	JAVA
#	class A
void main()	{
{ int a;	psvm(String K[])
printf("%d", a);	{ sw a;
} ↓	System.out.println(a);
garbage value	} ↓
	Compile time error

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Constant Variable in JAVA

final keyword is used to declare constant variable in JAVA when we assign value in final variable then compiler produce error

1)
```
int a = 10;
a = 40;
a = 7;
sopl(a); ⇒ 7
```

2)
```
final int a = 10;
a = 40; ⇒ Compile time error
```

3)
```
final int a = 10;
a = 10; ⇒ C.T. Error
```

4)
```
final int a = 10;
sopl(a);
```
✓

5)
```
final int a;
a = 10;
sopl(a);
```
✓

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ASCII (American standard code for information interchange)

Every letter, digit or symbol that present on keyboard have unique ASCII code

Letter / Digit / Symbol	ASCII Code
A	65
B	66
C	67
:	
Z	90
a	97
b	98
:	
z	122
0	→ 48
1	→ 49
:	
9	→ 57

Space key ⇒ 32

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What's the o/p

1) char ch = 'D';

SOPL (ch); ⇒ (D)

SOPL ((int) ch); (68)

2) int a = 69;

SOPL (a); ⇒ (69)

SOPL ((char) a); ⇒ E

Type Conversion :-

To convert a data type into another data type, called Type Conversion

There are two types of Type Conversion

1) Implicit Type Conversion
2) Explicit " " (Type Casting)

Implicit Type Conversion :-

Done by ~~Programmer~~ Compiler

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1) int a = 10;
long p;
p = a; → Implicit Type Conversion

int ⇒ 4 byte
long ⇒ 8 byte

sopl(a); 10
sopl(a); 10

2) long a = 10;
int p;
p = a; ⇒ C.T. Error
[required long found int]

Explicit Type Conversion (Type Casting)

① int p;
long a = 10;
p = (int) a; ✓

sopl(a);
sopl(p);

Done by programmer It is also called Type Casting

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2) char ch = 'D';

iw P;

P = (iw) ch;

JOPL (P); → 68

3) float a = 10.5; ⇒ C.T. Error

4) float a = 10.5f;

Decision making Construct

1) control the flow of Program
2) Also Known as Conditional Construct
3) JAVA support
   a) if _ else
   b) switch _ case

if _ else :

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Syntax:

```
if (condition)
    stat;
else
    stat;
```

```
if (condition)
{
    stat;
}
else
{
    stat;
}
```

Note:- 1) else is an optional part

2) Condition is Mandatory with if

3) We can not specify any condition with else

4) Condition must return boolean either true or false

5) If you want to execute a single statement as a body of if or else than block creation is optional otherwise block creation is Mandatory

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What's the o/p

1)
```
int a = 10;
if (a >= 10)
  sopl("Hi");
else
  sopl("Bye");
```
Hi

2)
```
int a = 10;
if (a >= 10);
sopl("Hi");
else
sopl("Bye");
```
C.T. Error : [Misplaced else]

3)
```
int a = 10;
if (a >= 10);
else
sopl("Bye");
```
No o/p

4)
```
int a = 10;
if (a > 10);
else
sopl("Bye");
```
Bye

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5) int a = 10;
if (a >= 10)
SOPL ("Hi");
SOPL ("Hello");
else
SOPL ("Bye");

6) int a = 10;
if (a >= 10)
{ SOPL ("Hi");
SOPL ("Hello");
else
SOPL ("Bye");

Hi
Hello

7) int a = 10;
if (a >= 10)
SOPL ("Hi");
else
SOPL ("Bye");
SOPL ("Go Away");

Hi
Go Away

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8) int a = 10;
if (a >= 10)
SOPL("Hi");
SOPL("Hello");
SOPL("Bye");

Hi
Hello
Bye

9) int a = 10;
if (a > 10)
SOPL("Hi");
SOPL("Hello");
SOPL("Bye");

Hello
Bye

10) int a = 10;
if (a = 10); → C.T. Error
SOPL("Hi");
else
SOPL("Bye");

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WAP that read a No from user and check given No. is even or odd

```
import java.util.*;
class check
{
p s v m (String K[])
{
Scanner ob = new Scanner(System.in);
SOPL ("enter a No");
int a = ob.nextInt();
if (a%2==0)
SOPL ("even No");
else
SOPL ("odd No");
}}
```

```
String p = (a%2==0) ? "even" : "odd";
SOPL (p);
```

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WAP that read a character from user and check given character is Vowel or Not

:

```
Scanner ob = new Scanner(System.in);
JOPL("enter a character");
char ch = ob.nextline().charAt(0);
if(ch=='a' || ch=='A' || ch=='e' ||
   ch=='E' || ch=='i' || ch=='I' ||
   ch=='o' || ch=='O' || ch=='u' || ch==
   'U')
JOPL("Vowel");
else
JOPL("Not a Vowel");
```

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else if ladder :- It is used to check multiple condition in a group if any condition is true then further condition will NOT checked

Syntax

```
if (condition)
    stat;
else if (condition)
    stat;
    :
    :
else if (condition)
    stat;
else
    stat;
```

Note

1) else is an optional part

2) Condition is mandatory with if and else if

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WAP that read marks from user and display grade according this criteria

Marks	Grade
>=90	A
<90 and >=70	B
<70 and >=50	C
<50 and >=33	D
<33	F

:

```
Scanner ob = new Scanner(System.in);
    SoPL("enter marks");
int a = ob.nextInt();
if (a>=90)
    SoPL("Grade A");
else if (a>=70)
    SoPL("Grade B");
else if (a>=50)
    SoPL("Grade C");
```

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```
else if (a>=33)
    printf("Grade D");
else
    printf("fail");
```

enter marks 52	enter 95
Grade C	Grade A