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Week 12/02/2007-16/02/2007 Lecture Notes:

When we write a program we must design our programs to take correct output. For correct output, we use PSEUDO CODE. Although pseudo code similar to programming code, this code is not a real code. Purpose of the pseudo code is to create a map to be understandable.

For example;

a = x / 5 = +6 we learn that from this equitation x > 0

```
1. read x

If x > 0 then

a = x

else

a = -x
```

end If.

And print if "absolute value of " x "is equal to" a

ABSRACTION: It means that make it easy. With abstraction, you can hide details, you show that what is done, how it is done.

For example;

- 1. Read X
- 2. Assign absolute value of x to a

1

3. print a

>>>> TYPES OF PROGRAMMING<<<<< $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$ $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$ $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$ **SEQUENCE SELECTION ITERATION** EX1 : Find summation of numbers 0 to n? 1. Begin 2. Read "n " **3**. sum = 0 i = 0 ↓ ↓ ↓ 1 ----- ↑ TRUE Т I | sum = sum + i | ------ | i = i + i <= 0 $\rightarrow \rightarrow$ 1 |-----FALSE Sum

In programming we have int i, n, sum

STOP

If we write for PSEUDO code:

1. Read n

- **2**. sum = 0
- **3**. i = 0
- 4. if (i < = n) then

```
5. sum = sum + i
i = i + 1
```

End if

Print sum

Stop

NOTE: we do not write our programs with "GO TO " because we have "FOR" instead of "GO TO"

```
With ABSTRACTION:
```

```
    read n
    sum = 0
    i = 0
    while (1 < = 0)
        <ul>
            sum = sum + i
            i = i + 1

    end while
    print sum
```



JAVA PROGRAM STRUCTURE

In a class definitio we have two key components:

I. Variables II. Methods

And all of these components are encapsulated in the class.

A simple example of Java program

```
// This line and the following three lines are comments
                                                              Comment
     // Example program
     lines
     public class Example
     {
          public static void main(String[] args) Method
          {
              System.out .print ("Hello");
 The
              System.out.println("world");
name of
                                                   Parameter(argument
              System.out.println();
 the
                                                  you pass to the method
              System.out.println("Good bye!");
library
                                                         print)
         } // end of main()
     }
     OUTPUT
     Hello world
     .....(blank line)
     Good bye!
```

• Be sure that you use meaningful names while creating your own variables!

O And be careful for the indentation!



These are the words defined by using a railroad diagram.

- I. public , static ,void ... (RESERVED WORDS) (You can not use these words as variables)
- **II. PROGRAMMER DEFINED IDENTIFIERS**
 - Class name
 - Method name
 - Variable name

How can we construct our own identifiers?

Java letters : all letters (a...z, A...Z)

- under score \$ dolar sign

Java digits(0...9)





or similarly...

Concatenation

int age =16; System.out.prinln("He is " + age + " years old.");

When we say, System.out.println("He is " + 16+1 +" years old.");

OUTPUT He is 161 years old.

When we say, System.out.println(" He is " + (16+1) + " years old.");

OUTPUT He is 17 years old.



\t: tab

\n: newline

\r: carriage return

\":double quote

\':single quote

\\ :backslash

If you write code in java :

System.out.println("He said \"Please see me later.\"and didn\'t stop");

Output:

He said "Please see me later" and didn't stop.

System.out.println ("He said"); System.out.println("Hello");

OR

System.out println("He said \n Hello");

Output:

He said Hello

Variable Declaration:



Variable Declarator:



TYPE:



***: final int KDV _RATE =18; If you write final in your code in java then you can not change it!!!

Primitive Data Types:

byte: 8 bits short: 16 bits int: 32 bits long: 64 bits 1,2,3 are : int 1.0 float point "1" string "12"

'1'char '12'

byte a ; 8 bits:



ASCII: AMERICAN STANDART CODE FOR INFORMATION INTERCHANCE 8 bits:

Cul	Dec	Hex	Char	Code	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
°Ø	0	00		NUL	32	20	sp	64	40	6	96	60	3
A	1	01	G	SCH	33	21	1 1 C	65	41	A	97	61	a.
٩B	2	02	8	SIX	34	22	17	66	42	B	98	62	Ъ
°C	3	03		EIX	35	23	#	67	43	C	99	63	C
°D.	4	04	٠	EOI	36	24	Ś	68	44	D	100	64	d
°E,	5	05	4	ENQ	37	25	1	69	4.5	E	101	65	e
۰F	6	06	+	ACK	38	26	8	70	46	F	102	66	f
٩G	7	07		BEL	39	27		71	47	G	103	67	5
°H	8	08		BS	40	28	κ.	72	48	III -	104	68	ĥ
°I	9	09	0	HI	41	29	5	73	49	I	105	69	i
01	10	0A	0	LF	42	2A	×	74	4 A.	-J	106	6A	1
°K	11	0B	8	VI	43	2B	1	75	4B	R	107	6B	k
٩L	12	OC	Ŷ	FF	44	2C	-	76	4C	L	108	6C	1
^M	13	OD	P	CR	45	2D	_	77	4D	M	109	6D	14
٩N	14	OE.	B	30	46	2E	•	78	4 E.	N	110	6E.	n
20	15	OF	*	ST	47	2F	1	79	4 F	0	111	6F	o
۰p	16	10		SLE	48	30	0	80	50	P	112	70	P
°Q.	17	11		CS1	49	31	1	81	51	Q	113	71	P
°R	18	12	1	DC2	:50	32	2	82	\$28	R	114	72	r
°\$	19	13		DC3	:51	33	3	83	53	S	115	73	\$
°1	28	14	-11	DC4	52	34	4	84	54	T	116	74	t
۰U	21	15	S	NAK	53	35	5	85	55	U	117	75	u
۰v	22	16		SYN	54	36	6	86	56	V	118	76	U
°W	23	17	ŧ	EIB	55	37	7	87	57	W	119	77	
x°	24	18	Ť	CAN	56	38	8	88	58	x	120	78	×
٩Y	25	19	1	EM	57	39	9	89	59	Y	121	79	ų
°Z.	26	1A	->	SIB	58	3A	0.0	90	5A	Z	122	7A	Z
10	27	1B	*	ESC	59	3 B ®		91	3B	T	123	7B	-
2	28	1C	1.55	FS	60	30%	1	92	SC:	1	124	70	1
2	29	1D	-0-	GS	61	3D	±	93	5D	1	125	TD	3
00	30	1E	1	RS	62	3E.	>	94	5E	~	126	7E	-
ð.	31	1F	*	US	63	3F	?	95	5F		127	7F	AT.

Questions:

- 1. What is pseudo code? Why we need pseudo code in our programs?
- 2. What is abstraction?
- 3. Write a program which gives an output if result is negative. Write this program with pseudo code and abstraction.
- 4. What are the difference between procedural programming and object oriented programming?
- 5. What is the aim for writing comments while we are writing programs?
- 6. Explain the difference between print and println methods?
- 7. What does "concatenation" mean?
- 8. What is the difference between println and print in java?Write outputs of following codes with using print method??
 - a. System.out.println("Welcome To Java World!");
 - b. System.out.println("It's First Step to be a Computer Enginer");
- 9. How Variable Declarator behave if you put final at the beginning of your variable?

10. What is ASCII why it is needed to do a table?? Write Decimal "39","43","126" in Hexa decimal by looking table ?? ©