Topic $\Rightarrow$ User Defined Methods
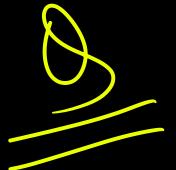
(Method Overloading)

Lecture $\Rightarrow$ 07

W.A.P with an overloading function volume as follows:
void volume (int s) : To pr int and find volume of a cube.
void volume (int L, int B, int W) : To accept length, breadth and width of a cuboid.
double volume(int R, int H) : To accept radius and height of a cylinder to find volume
(πr^2h), take π = 22/7.
Also write main method to call the above functions.

Ans ⇒

```
import java.util.Scanner;
class Mensuration
{
void volume(int s)
{
int v = s*s*s;
Sopln(v);
}

void volume(int L, int B, int W)
{
int v = L*B*W;
Sopln(v);
}

double volume(int R, int H)
{
double v = 22.0/7.0*R*R*H;
return v;
}

public static void main (String args[])
{
Mensuration ob = new Mensuration ();
Scanner obj = new Scanner(System.in);
int s = obj.nextInt();
int l = obj.nextInt();
int b = obj.nextInt();
int w = obj.nextInt();
int r= obj.nextInt();
```

```
int h = obj.nextInt();
ob.volume (s);
ob.volume (l, b, w);
System.out.println(ob.volume(r,h));
}
}
```

Design a class to overload a function area() as follows :

i) double area (double a, double b, double c) with three double arguments, returns the area of a scalene triangle
   using the formula :
   area = $\sqrt{(s(s-a)(s-b)(s-c))}$
   where s = (a+b+c)/2

ii) double area (int a, int b, int height) with three integer arguments, returns the area of a trapezium using the
    the formula:
    area = height(a+b)/2

iii) double area (double diagonal1, double diagonal2) with two double arguments, returns the area of a rhombus
     using the formula:
     area = (diagonal1*diagonal2)/2

Also write the main method to call the above functions.

Answer in next Slide

```java
class Area
{
double area (double a, double b, double c)
{
double s = (a+b+c)/2.0;
double ar = Math.sqrt(s*(s-a)*(s-b)*(s-c));
return ar;
}

double area (int a, int b, int height)
{
double ar = height*(a+b)/2.0;
return ar;
}

double area (double diagonal1, double diagonal2)
{
double ar= diagonal1*diagonal2/2.0;
return ar;
}
```

```java
public static void main (String args[])
{
Area ob = new Area();
Sopln(ob.area(2.0, 3.0, 5.0));
Sopln(ob.area(5,6,7));
Sopln(ob.area(17.0, 51.3));
}
}
```

Design a class to overload a function Polygon as follows:

i) void Polygon (int n, char ch) : with one integer argument and one character argument that draws a filled square of side n using the character stored in ch

ii) void Polygon (int x, int y) : with two integer arguments that draws a filled rectangle of length x and breadth y, using the symbole '@'

iii) void Polygon () : with no argument that draws a filled triangle as shown below

```
*
* *
* * *
```

Ans

```java
class Fun
{
void Polygon (int n, char ch)
{

for(int i=1 ; i<=n ; i++)
{
for(int j=1 ; j<=n ; j++)
{
System.out.print(ch);
}
System.out.println();
}
}
```

```java
void Polygon (int x, int y)
{
for(int i=1 ; i<=x ; i++)
{
for(int j=1 ; j<=y ; j++)
{
System.out.print('@ ');
}
System.out.println();
}
}

void Polygon ()
{
for(int i=1 ; i<=3 ; i++)
{
for(int j=1; j<=i ; j++)
System.out.print('*');
System.out.println();
}
}
```

```java
public static void main(String args[])
{
Fun ob = new Fun();
ob.Polygon(12 , 'E');
ob.Polygon(2,4);
ob.Polygon();
}
}
```

Design a class with an overloading function
area () : to find area of a square rectangle and circle.
Also write main method to call the above overloading function as per users choice.

Homework ⇒ Do the Markeed Qustion

Thank You