

Calculating Average of given set of numbers

Recursive formula to calculate average of given set of numbers is given as

$$\text{Avg}(N) = \frac{(\text{Avg}(N-1) * (N-1) + N^{\text{th}} \text{ element})}{N}$$

This is no limitation with respect to data overflow if we calculate average of numbers using this formula.

Program is given as

Class Numbers

```
{
    double avg=0.0;

    int sumInNumbers()
    {
        int count=0;
        Scanner in= new Scanner(std.in);
        while(in.hasNextInt())
        {
            Avg=((avg*count)+in.nextInt()/(count+1);

        }
        return avg;
    }

    public static void main(String args[])
    {
        Numbers n=new Numbers();
        int sz=n.sumInNumbers();

        if(sz ==0)
        {
            System.err.println(" Error in input\n");
            return;
        }
        system.out.println("Average=" +n.avg);
    }
}
```

Note that, when value of sz is zero, we want to exit immediately from main function. This is achieved using “return” statement.

Few things covered during lecture

- General Programming Style
 - Class name should start with capital letter
e.g class Year
 - Variables of class in lower case
 - Function name starting from small letter for first word and all remaining words starting with capital letter.
e.g isLeap()
- In java, Methods for which type is not defined are public
- Method toString()
Every class in java have a method toString(). This method converts given object into string. You need to implement this method if you want to print object information in desired format. Java has its default implementation if we do not implement it.
e.g. This method is called for the object when its passed as argument to system.out.println.
- Can we have two functions of same name and different return types?
Yes
- Format of switch

```
switch(some expression)
{
    case CONST-EXPR:
        //statement
        break;
    case CONST-EXPR:
        //statement
        break;
    case CONST-EXPR:
        //statement
        break;
    default:    //statement
}

```

If you do not put break after a case, it will execute all cases below it.
“default” is called when no CONST-EXPR matches.

Program to Display calendar of given month

Implementation of few functions of class Year

```
class Year
{
    int year;

    Year() {
        This.year=2000;
    }

    Year(int y) {
        Year=(y>1900)? y:1900; //if year less than 1900, set it to 1900
    }

    Year(Year y) { //copy constructor
        // used during assignment operation between two year
        Elements
    isLeap(int year)
    {
        if(! year % 400) return true; //if divisible by 400 return true
        if(! year % 100) return false; //if divisible by 100 but not by 400
        if(! year % 4) return true;
    }
}
}
```