Java Program for representing class and object

```
class Employee  // Datatype
{
  int empno;
  String ename;
  float salary;
}

class Test
{
public static void main(String args[])
{
Employee emp1=new Employee(); # object
Employee emp2=new Employee(); # object
emp1.empno=101;
emp1.ename="naresh";
emp1.salary=50000;
System.out.printf("%d %s %f",emp1.empno,emp1.ename,emp1.salary);
emp2.empno=102;
emp2.ename="suresh";
emp2.salary=45000;
System.out.printf("\n%d %s %f",emp2.empno,emp2.ename,emp2.salary);
}}
```

Example of classes and object in python

```
class Student: # datatype
    def __init__(self):
        self.rollno=None
        self.name=None


stud1=Student()
stud1.rollno=101
stud1.name="naresh"
stud2=Student()
stud2.rollno=102
stud2.name="suresh"
print(stud1.rollno,stud1.name)
print(stud2.rollno,stud2.name)
```

Scalar data types
These data types are used to allocate memory for one value/single value

1. **int class or data type**

This class is used to represent integer object or value
Integer is an immutable object or constant. After creating integer object we cannot modify value or update value.
The size of integer data type is unlimited

What is variable?
Variable is an identifier
Variable is a named memory location
Variable is name given to object
Every object is identified with name, this name is called variable name

Q: What is an SBI of object?

S → State
B → Behavior
I → Identity

In python variables are created using = assignment operator

```
>>> int a
SyntaxError: invalid syntax
>>> a=45
>>> a
45
>>> type(a)
<class 'int'>
```

Integer literal
In python integer literals or values represented in 4 formats

1. decimal
2. octal
3. hexadecimal
4. binary

These are called number systems.

Decimal integer
An integer value with base 10 is called decimal integer.
This integer is created using digits from 0-9
This integer prefix with + or –
Decimal integer is not prefix with 0

```
>>> n1=56
>>> n2=98765
>>> n1
56
>>> n2
98765
>>> n3=0123
SyntaxError: leading zeros in decimal integer literals are not permitted; use an 0o prefix for octal integers
```

Only special character is allowed inside number _
It is used for grouping digits, it is not used as suffix or prefix

```
>>> a=1_200
>>> a
1200
>>> b=1200_
SyntaxError: invalid decimal literal
>>> c=_1200
Traceback (most recent call last):
  File "<pyshell#22>", line 1, in <module>
    c=_1200
NameError: name '_1200' is not defined
>>>
```

Octal integer literal
An integer value with base 8 is called octal integer
This integer is created using digits from 0-7
This integer is prefix with 0o or 0O

Applications of octal integer