1 JAVA ORIENTATION

- Any problem, any logic, for that matter, anything can or rather has to be put inside a CLASS.in JAVA.

- So fill up tour code in a class and save it as class name.java(*preferably*)

  Example:

  ```
  class ABC
      {
          int a;
          String s;
          void a()
              {
                  System.out.println("amethod");
              }
      }
  ```

  Class name for the above program is:**ABC.java** (*preferable but not compulsary*)

  Note:But if you make a class public, you must name that file with that class name.

  Example:

  ```
  public class ABC
      {
          int a;
          String s;
          void a()
              {
                  System.out.println("amethod");
              }
      }
  ```

  Class name is : **ABC.java** (*MANDATORY*)
  CDE.java (*COMPILATION ERROR*)

- A .java file can contain more than one class but only public class.

  Example:

  ```
  class ABC
      {
          int i;
          String s;
          void a()
              {
                  System.out.println("HI");
  ```

```
                }
        }
class B
        {
            char c;
            void b()
                {
                    System.out.println("HELLO");
                }
        }
```

Class name for the above program can be : **A.java**
(*or*)
B.java
(*or*)
some random name.java

But, The following program will fail.

Example:

```
public class ABC
        {
            int i;
            String s;
            void a()
                {
                    System.out.println("HI");
                }
        }
public class B
        {
            char c;
            void b()
                {
                    System.out.println("HELLO");
                }
        }
```

Class name for the above program: **A.java**
(*or*)
B.java

THESE TWO CLASS NAMES ARE WRONG.

Reason : A .java should not contain more than one public class.So, the correct version is the following:

Example:

```
public class A
   {
      int i;
      String s;
      void a()
         {
            System.out.println(”HI”);
         }
   }
class B
   {
      char c;
      void b()
         {
            System.out.println(”HELLO”);
         }
   }
```

Class name for the above program: **A.java** (*COMPULSORY*)

EXAMPLES OF OTHER CLASSES

eg:1

```
class Test
   {
      public static void main(String[]args)
         {
            System.out.println(”Helloworld”);
         }
   }
```

Class name is **Test.java**

eg:2

```
class Student
   {
      int rollno;
      String name;
      String degree;
```

```
        void read()
            {
                System.out.println(”Reading”);
            }
        void write()
            {
                System.out.println(”writing”);
            }
    }
```

Any .java has to pass through two phases:

1.Compilation Phase

2.RunTime Phase

1.Compilation Phase:

Any java program is compiled using ”javac filename.java”

Example:1

```
class ABC
    {
        int i;
        void a()
            {
                System.out.println(”HI”);
            }
    }
```

ABC.java(*classname*)⟶javac ABC.java(*compiling*)⟶ABC.class

After Compilation classname.class will be produced.

Example:2

```
public class ABC
    {
        int i;
        void b()
            {
                System.out.println(”HI”);
            }
    }
class B
    {
        B()
```

```
                {
                    System.out.println("B");
                }
            }
        class C
            {
                void d()
                {
                    System.out.println("d");
                }
            }
```

Class name for the above program: **ABC.java** and after compiling the above program using javac ABC.java three .classes will be produced i.e. **ABC.class, B.class, c.class**.

What happens in Compilation error

Compliler will check for the following:

1.Syntax Checking

A.java

```
        class A
            {
                int i——>(compilation falis because no semicolon ;)
                int j;
                void a();——>(Complilation falis because semicolon should not be placed)
                             (during defination of method)
                {
                    System.out.println("d");
                }
            }
```

2.Wrong Assignments

A.java

eg:1

```
            class A
            {
                public static void main(String[]args)
                {
                    float f = 19.1;——>(Compilation falis because assigning double(19.1))
                                       ( to floatf will cause of precision)
                }
            }
```

eg:2 More common case is with ”reference” variables.

Cat.java

```
class Cat
     {
          int size;
          int height;
          void talk()
              {
                  System.out.println(”meow”);
              }
     }
```

Dog.java

```
class Dog
          int size;
          int height;
          void talk()
              {
                  System.out.println(”bow”);
              }
     }
```

Test.java

```
class Test
     {
          public static void main(String[]args)
              {
                  Cat c= new Cat();
                  Dog d= new Dog();
                  d=c;⟶(Compilation will fail because assign ”Cat” variable to)
(                       ”Dog” will not be allowed)
              }
     }
```