

## How are Java objects stored in memory?

In Java, all objects are dynamically allocated. When we only declare a variable of a class type, Java just creates a reference. To allocate memory to an object, we must use new().

For example, following program fails in compilation. Compiler gives error *"Error here because t is not initialed"*.

```
class Test {  
    // class contents  
    void show() {  
        System.out.println("Test::show() called");  
    }  
}  
  
public class Main {  
    public static void main(String[] args) {  
        Test t;  
        t.show(); // Error here because t is not initialed  
    }  
}
```

Allocating memory using new() makes above program work.

```
class Test {  
    // class contents  
    void show() {  
        System.out.println("Test::show() called");  
    }  
}  
  
public class Main {  
    public static void main(String[] args) {  
        Test t = new Test(); //all objects are dynamically allocated  
    }  
}
```

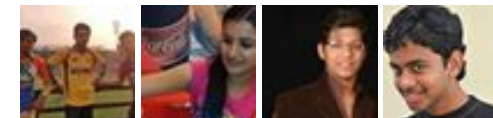
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```
t.show(); // No error
}
}
```

Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.



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**Dixit Singla** • 2 months ago

As you said "all objects are dynamically allocated" means memory allocated to

2 ^ | v • Reply • Share ›

**Nikhil Katre** → Dixit Singla • a month ago

Yes, In Java objects are created in the heap memory

^ | v • Reply • Share ›

**Brajesh Kumar** • 7 months ago

Compiler raise an error if variables are local. If the the variables are fields( inst these are initialized with default values as following

Data Type ----Default Value

boolean----false

char----'\u0000'

Integer(long, short, int, byte)---- 0L for long and 0 for others

Floating point(float, double) ---- 0.0F or 0.0

Reference-----null

3 ^ | v • Reply • Share ›

**Ashish** • 3 years ago

Compiler gives error "Error here because t is not initialized".

come when any local variable of function is not initialized for both type of varial

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And if member reference variable is not initialized it doesn't give compilation b null

and in run time it will give "NULL Pointer exception".

3 ^ | v • Reply • Share ›



**GeeksforGeeks** → Ashish • 3 years ago

@Ashish: It gives compilation error only. Following is the error given by

```
C:\java>javac Main.java
Main.java:11: variable t might not have been initialized
        t.show(); // Error here because t is not initialed
        ^
1 error
```

^ | v • Reply • Share ›

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