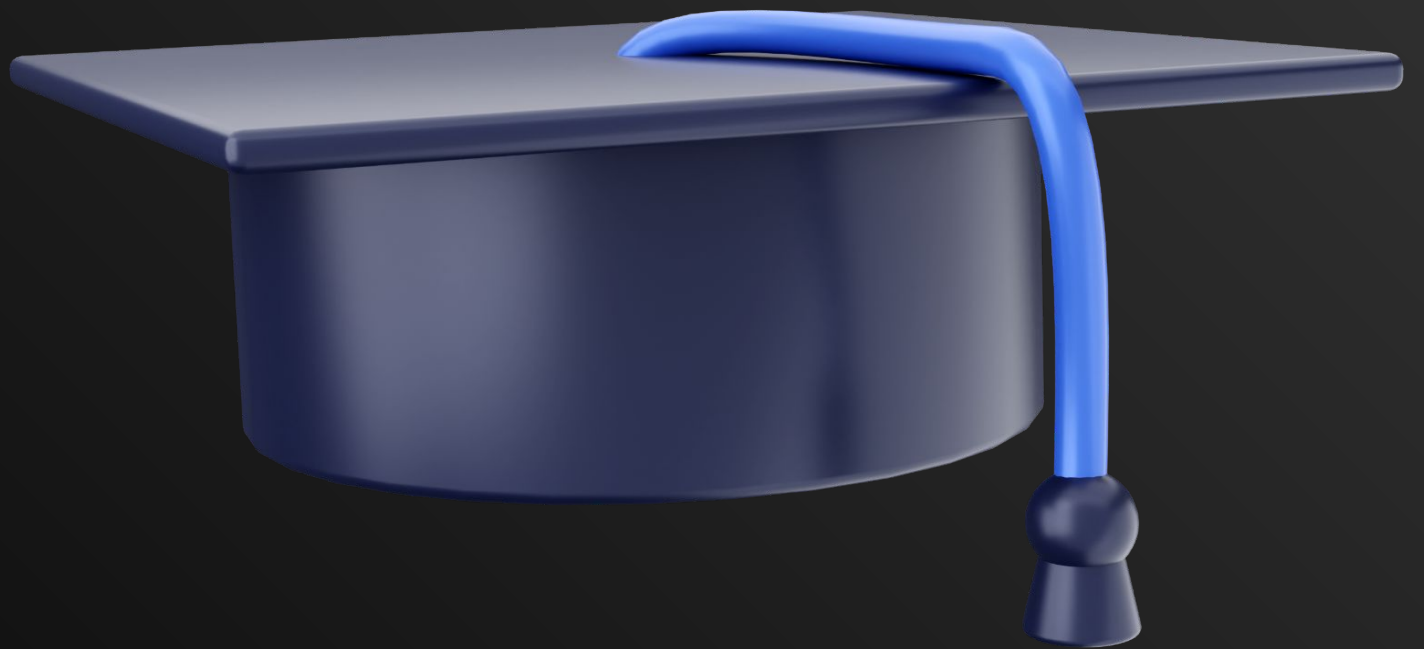


# Master OOPS Concepts in Java



*art by: [iconscout.com](https://iconscout.com)*



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# 1. Concepts in OOPS

- Object
- Class
- Inheritance
- Encapsulation
- Abstraction
- Polymorphism

## 2. Object

- Any real world entity is an object. It has **Behavior** and **Attribute**.
- Behavior tells what object does or performs.
- Attribute is use to describe the object.

### Chair

It can be considered as an object, with **behaviors like wheel movement, adjust height, recline**, etc. and **attributes like color, brand, price**, etc.

# 3. Class

- The **collection of all related objects** is called Class.
- Consider class as a general category which contains all the related objects inside it.

## Chair

Objects like **Wheel chair**, **Office chair**, **Recliner chair** belong to **Chair class**.

# 4. Inheritance

- In real world, a Child inherits qualities from his/her Parent.
- Similarly, a **Child class can also inherit qualities from it's Parent class.**

**Phone** 

Parent class **Phone can have two child** classes -

TelePhone

MobilePhone

Both these child classes can **inherit the calling behavior.**

# 5. Encapsulation

- It means **wrapping the data into a single unit & securing it.**
- It **secures data** from the outside world.

## Bank Locker

A Banker Locker, wraps your valuables into a single unit(locker) and protects it via passcode.

## Drug Capsule

Wraps different medicines into a single unit and protect them from outside environment.

# 5. Abstraction

- **Hiding complexity from the user** and showing only the relative stuff.
- This enables user to only focus on relevant stuff.

**Car** 

In car, all the complexity like engine, machinery, etc is hidden from you.

Only relevant part is shown like the brakes, accelerator, and gearbox.

## 6. Polymorphism

- The word **polymorphism** means many forms.
- It talks about using the **same name** and providing **different behaviour**.

### Chess

All chess pieces like king, rook, bishop, queen, knight, etc. **move** differently. Bishop moves diagonally, Rooks move horizontal and vertical, etc.

The common behavior name "move" is the same for all pieces but it's still differently done by them which is nothing but polymorphism.



# 7. Conclusion

- We can **use the OOP concept to map any real-world situation** into programming very easily.
- That's why **OOP concepts are designed close to reality.**
- A better understanding of these concepts is going to decide how good programmers we will become in the future.

❤️ Thanks for reading !

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