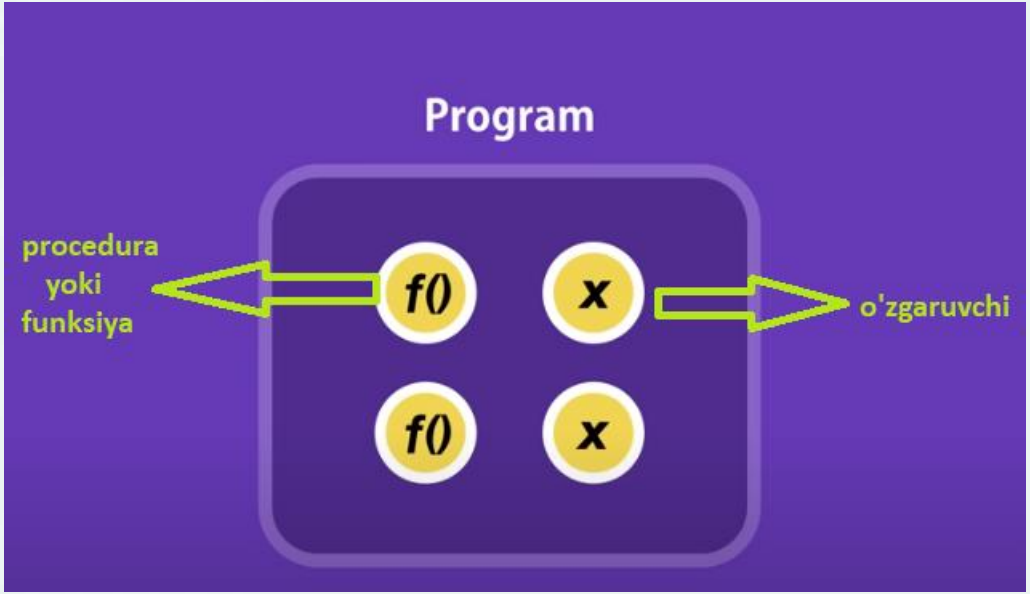
OOP tushunchasi. Object, class, o’zgaruvchi, method va konstruktor tushunchalari

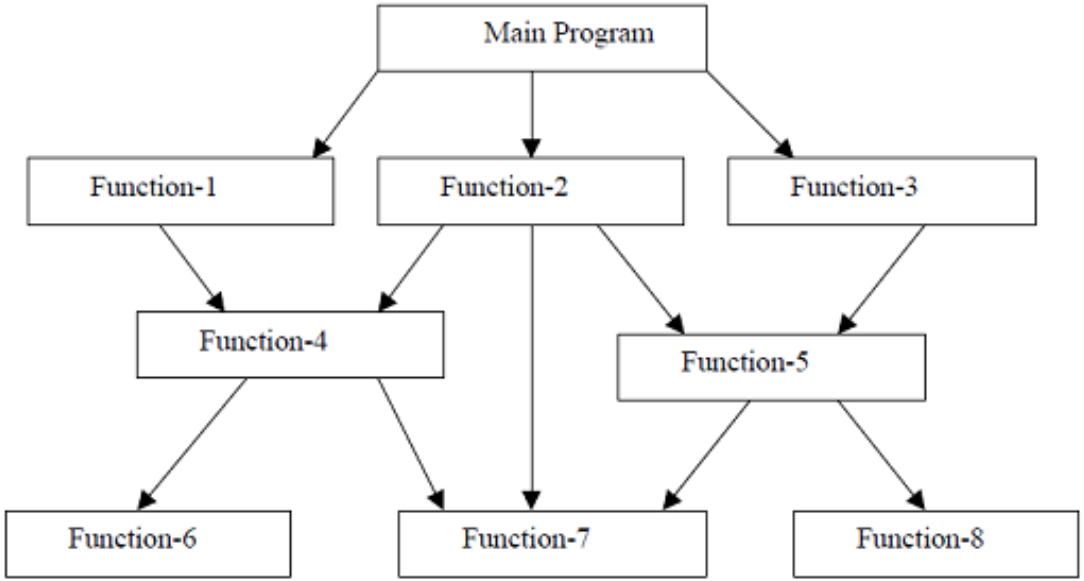
PERSONAL
DEVELOPMENT PROCESS
stay weird, stay different

Dasturlashda asosan 2 ta quyidagicha yondashuv mavjud:

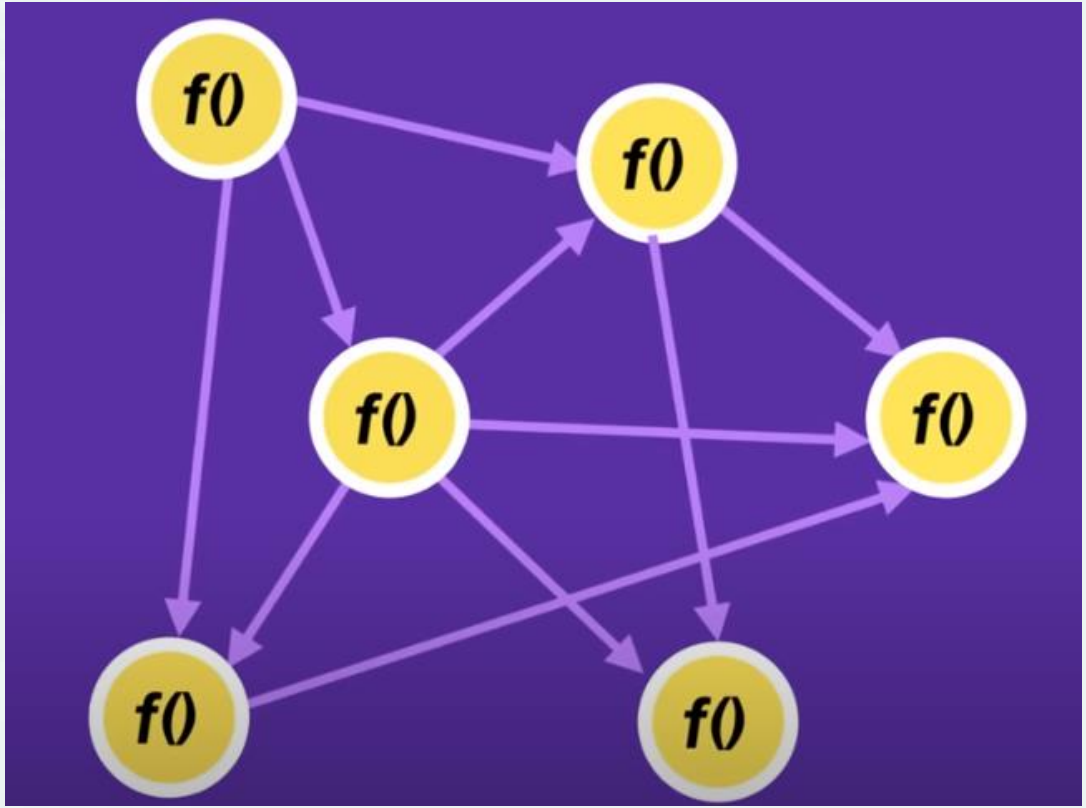
- Procedural programming
- Object Oriented Programming (OOP)

Procedural programming





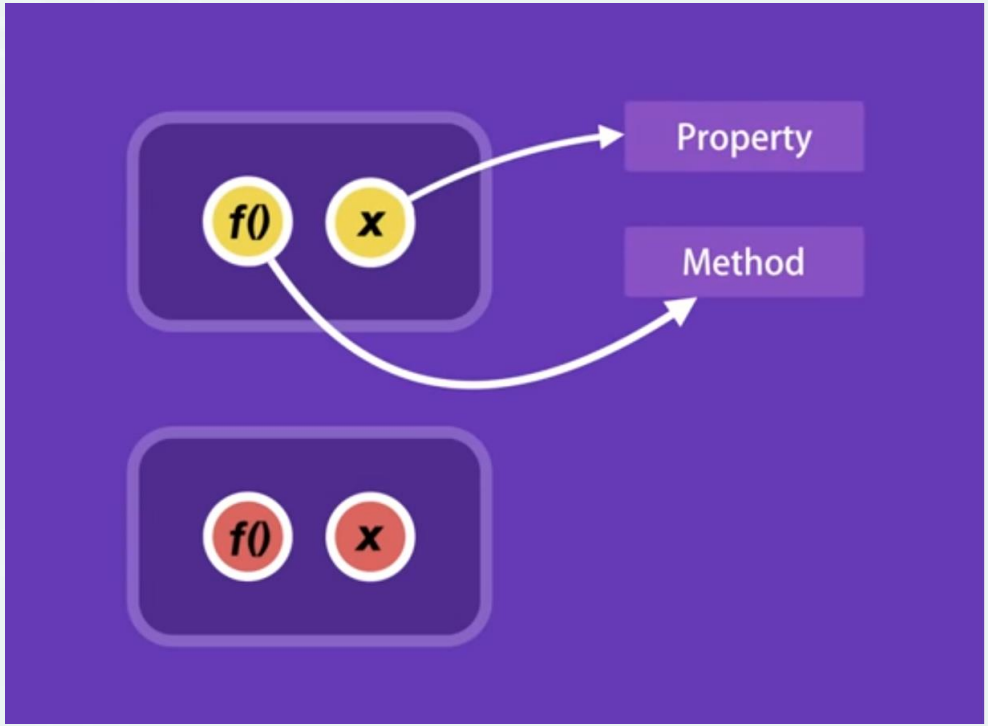
Structure of procedural oriented programs

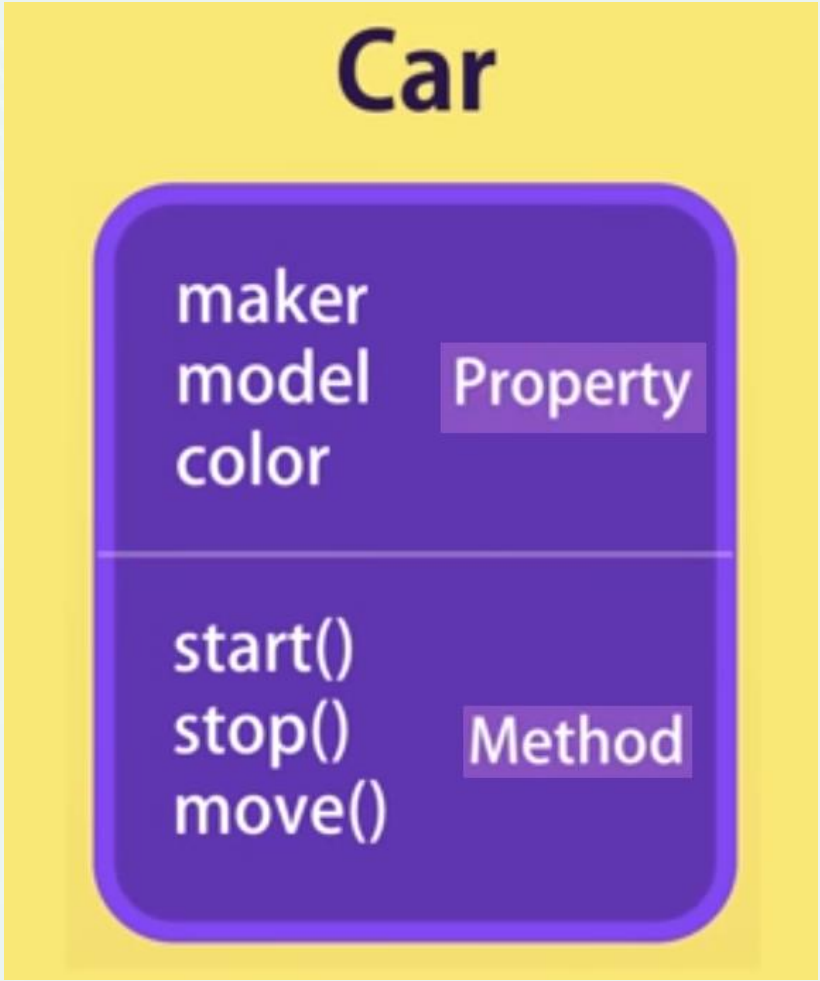

f0
f0
f0
f0
f0
f0

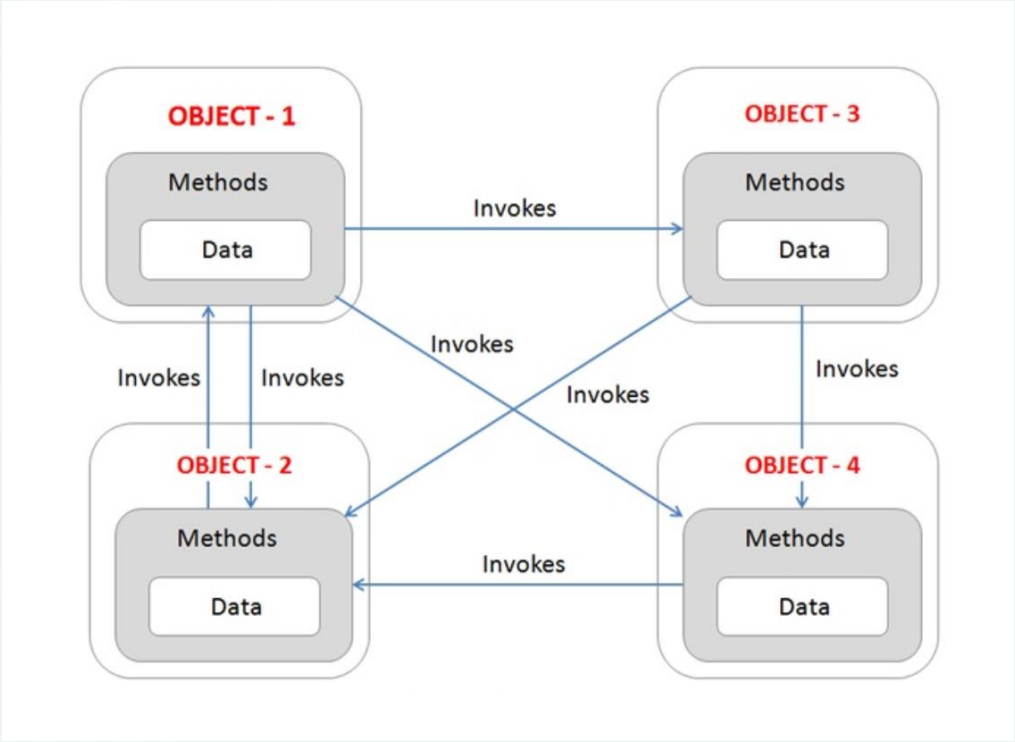
```
let accounts = [];

function account(name, balance = 300){
  accounts.push({
    name: name,
    balance:  balance
  });
}

function getAccount(name){
  for(let i = 0; i < accounts.length; i ++){
    if(accounts[i].name === name){
      return accounts[i];
    }
  }
}

function deposit(name, amount){
  let account = getAccount(name);
  account.balance = account.balance + amount;
}

function withdraw(name, amount){
  let account = getAccount(name);
  account.balance = account.balance - amount;
}

function transfer(payer, beneficiary, payment){
  let payerAccount = getAccount(payer);
  withdraw(payerAccount.name, payment);
  let beneficiaryAccount = getAccount(beneficiary);
  deposit(beneficiaryAccount.name, payment);
}
```

PERSONAL
DEVELOPMENT PROCESS
stay weird, stay different

Object Oriented Programming

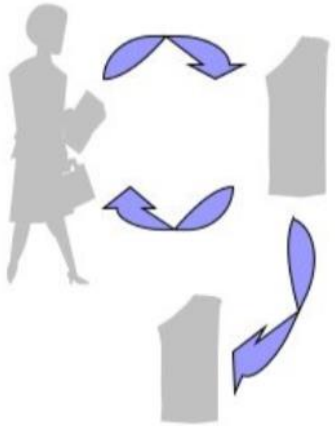



Car
maker
model
color
Property
start()
stop()
move()
Method


OBJECT - 1
Methods
Data
OBJECT - 3
Methods
Data
Invokes
Invokes
Invokes
Invokes
Invokes
Invokes
OBJECT - 2
Methods
Data
OBJECT - 4
Methods
Data
Invokes

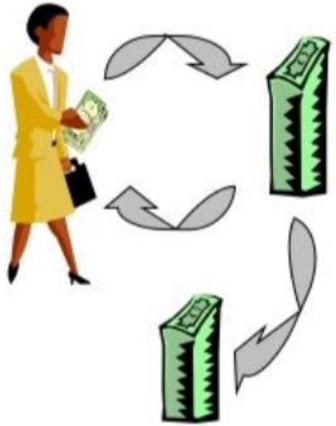
Procedural vs. Object-Oriented

- Procedural

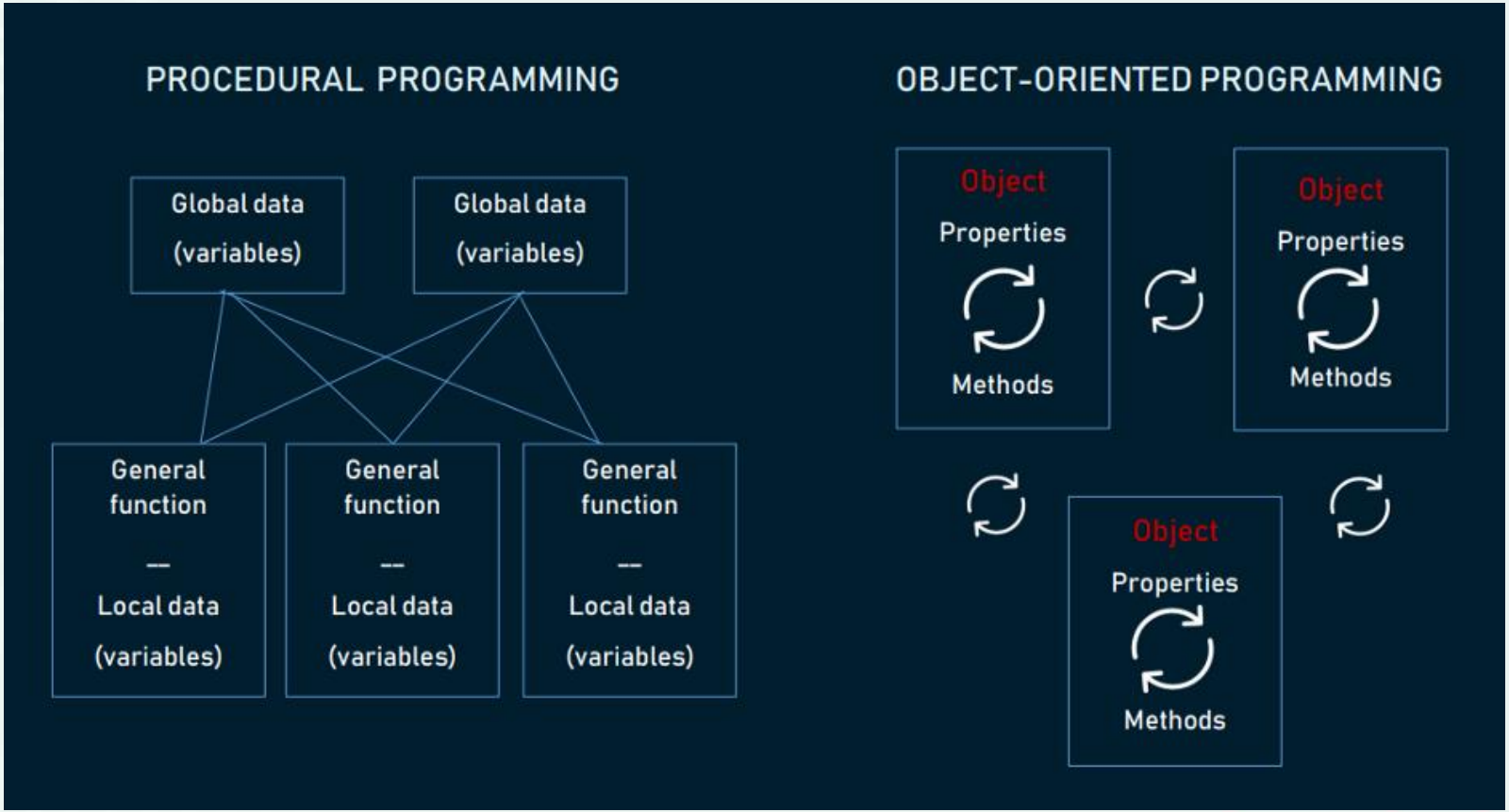


Withdraw, deposit, transfer

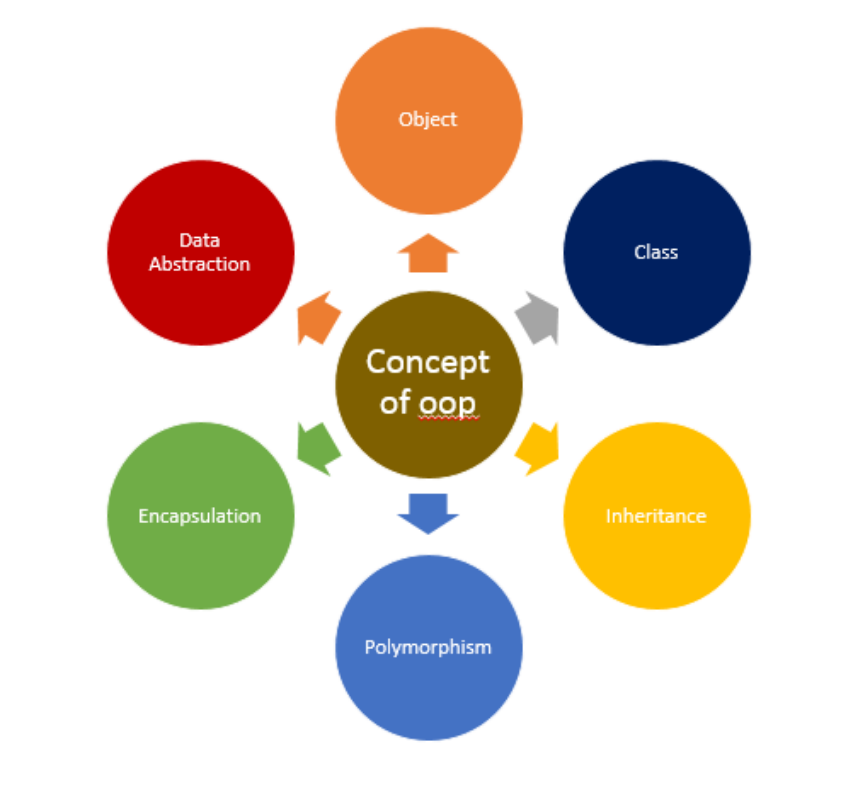
- Object Oriented



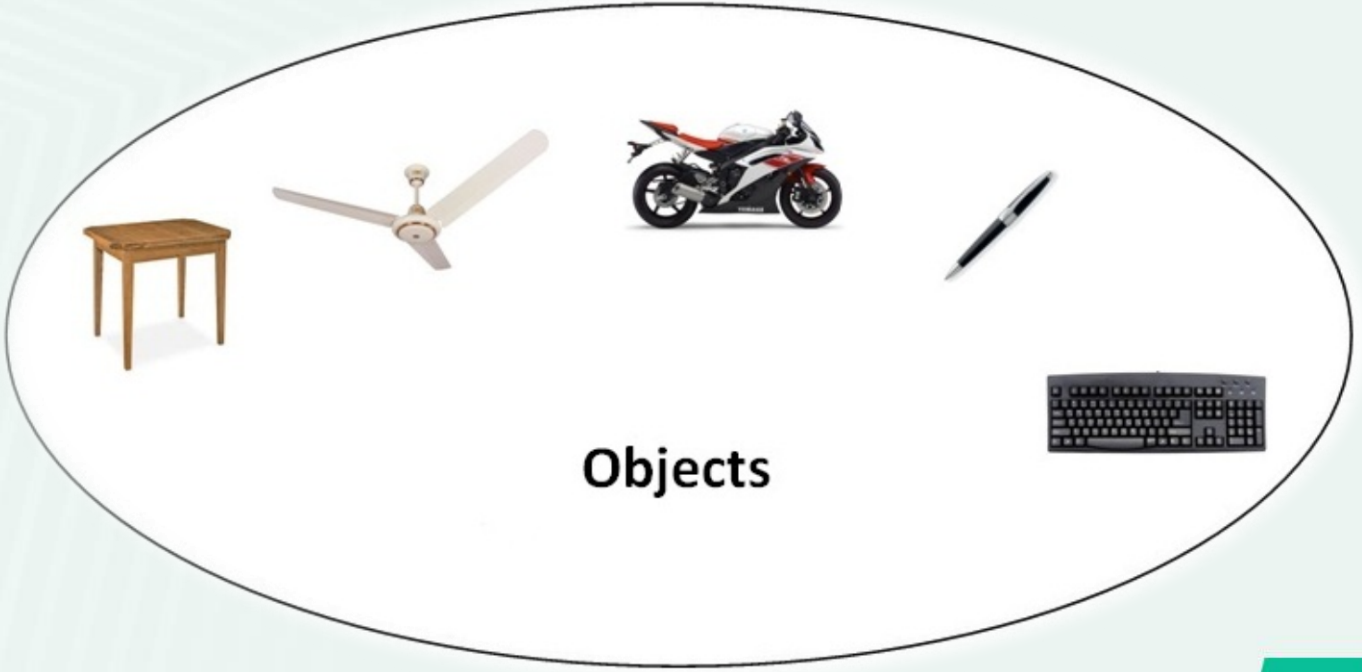
Customer, money, account


PROCEDURAL PROGRAMMING
Global data (variables)
Global data (variables)
General function
Local data (variables)
General function
Local data (variables)
General function
Local data (variables)
OBJECT-ORIENTED PROGRAMMING
Object
Properties
Methods
Object
Properties
Methods
Object
Properties
Methods

OOP concepts



What Is an Object?



OOP - What Is An Object ?

OBJECT	STATE	BEHAVIOR	IDENTITY
CAR	Colour	Start	Registration Number
	Brand	Move	Chassis Number
	Model	Stop	Owner

What Is an Class?

Class –bu nimaningdir mantiqiy tasnifi, shabloni. Ushbu tasnif asosida o’sha nimaningdir real nusxasini yaratish mumkin. Bitta so’z bilan aytganda yaratilayotgan buyum(obekt) qanaqa attribut(xsusiyat) va method(xossa)larga ega bo’lishi kerakligini aniqlab beruvchi tasnifidir.

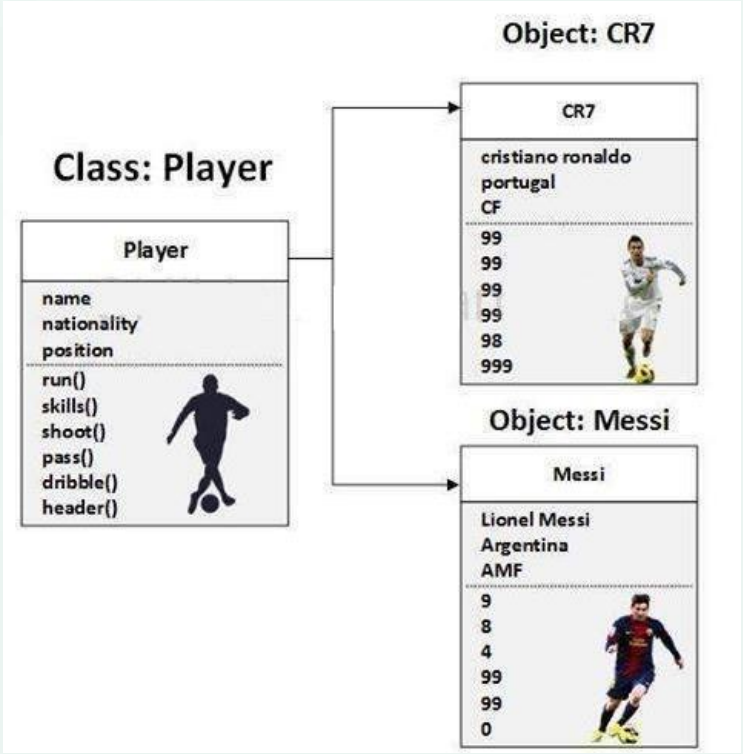
Fields (properties)
methods
constructors
blocks
nested class and interface

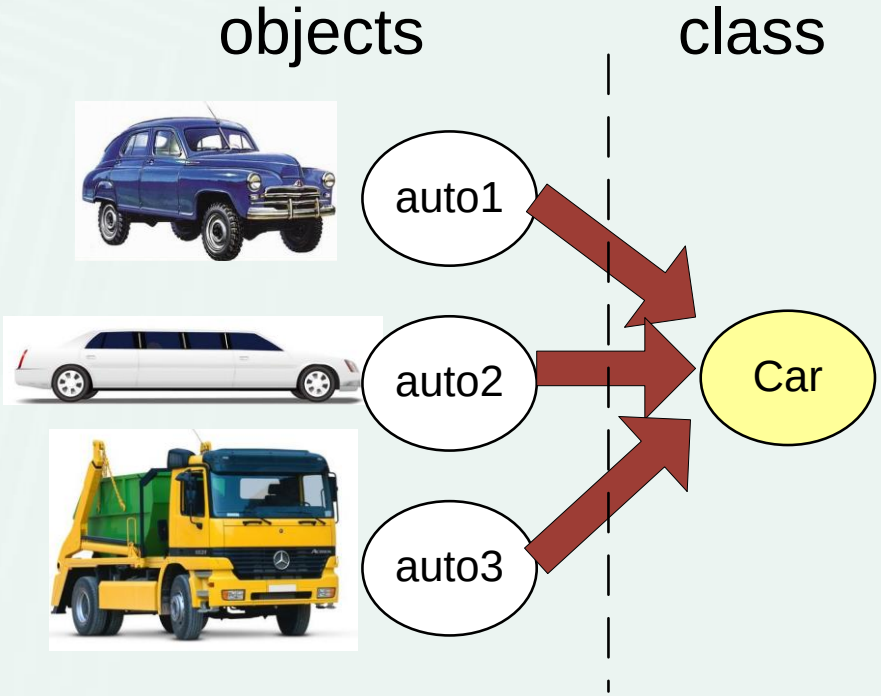
PROPERTY

COLOR = “BLUE”
TYPE = “SPORT”
WEIGHT = “200KG”

METHOD

START()
STOP()
DRIVE()
BREAK()


Object: CR7
Class: Player
Player
name
nationality
position
run()
skills()
shoot()
pass()
dribble()
header()
CR7
cristiano ronaldo
portugal
CF
99
99
99
99
98
999
Object: Messi
Messi
Lionel Messi
Argentina
AMF
9
8
4
99
99
0


objects
class
auto1
auto2
auto3
Car

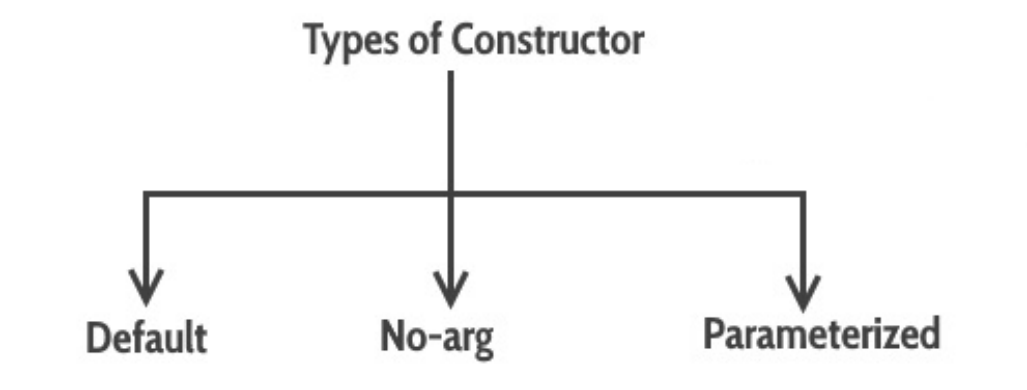
Constructor in Java

Konstruktor – bu maxsus method bo’lib, u yangi ob’ekt yaratilayotganda chaqiriladi. Konstructor nomi klass nomi bilan bir xil bo’ladi.

Methoddan farqli ravishda konstructor hech nima qaytarmaydi.

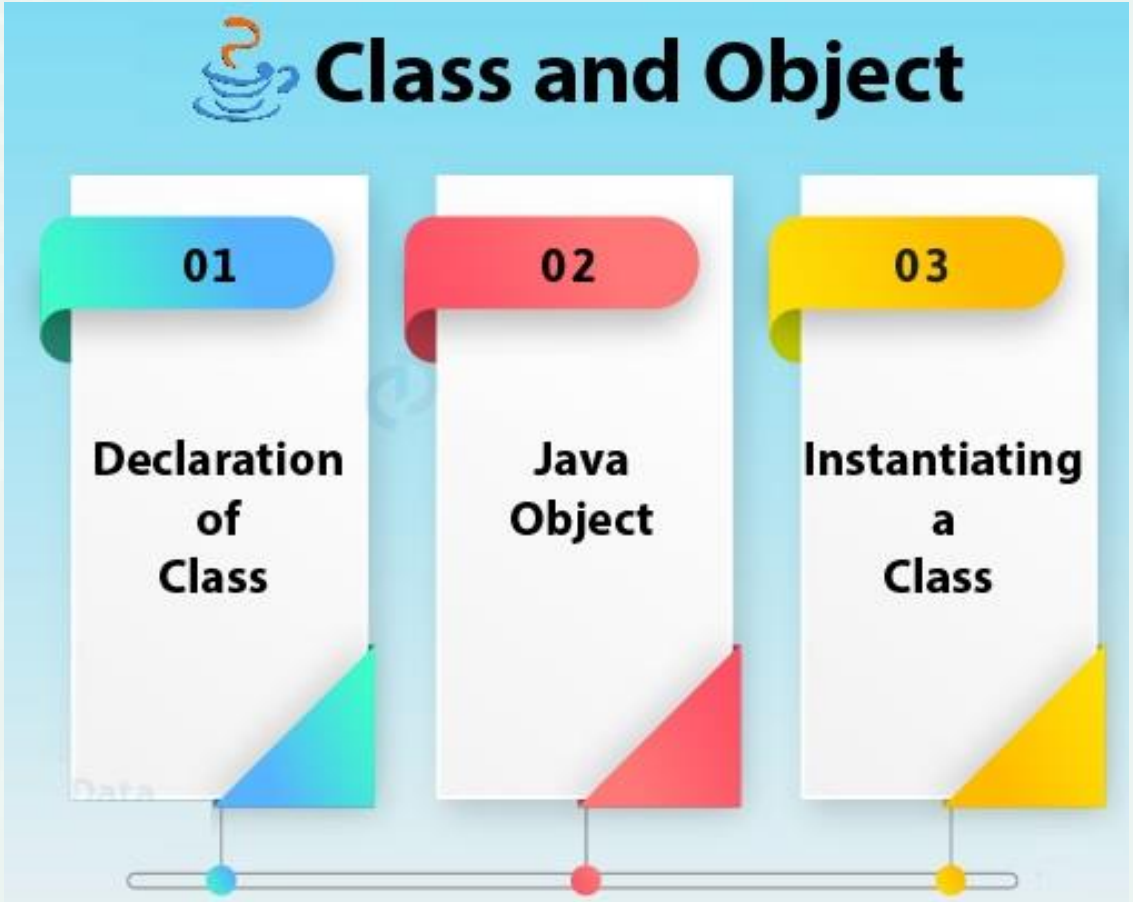
Odatda konstruktorlar aniq ko’rsatib qo’yiladi. Konstruktor ko’rsatilmagan taqdirda java avtomatik holatda default konstruktorni yaratib qo’yadi.

Constructor in Java

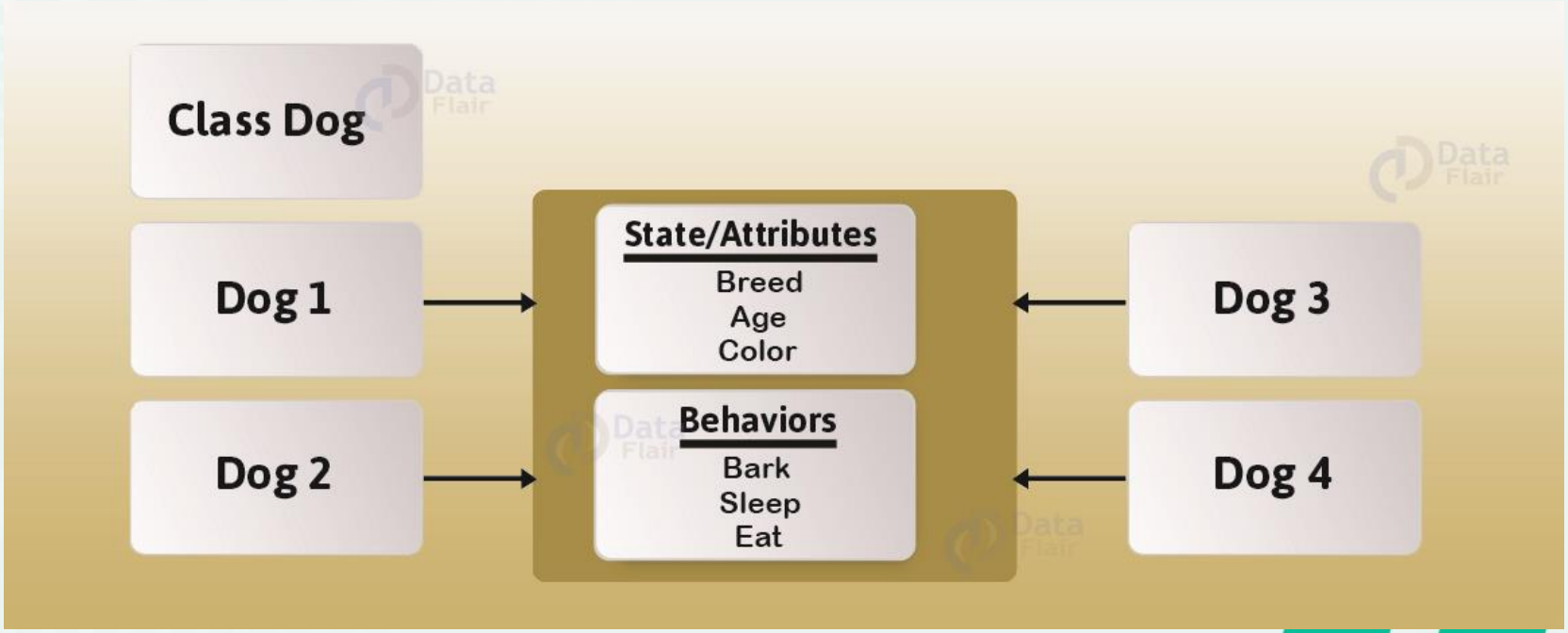


Constructor in Java

```
class Box {
   double width;
   double height;
   double depth;
   Box(){                          //default constructor
   }
   Box() {                         //No-args constructor
      width = 10;
      height = 10;
      depth = 10;
   }
   Box(double w, double h, double d) {
      width=w;                     // Parametrized constructor
      height=h;
      depth=d;
}
}
```


Class and Object
01
Declaration of Class
02
Java Object
03
Instantiating a Class

Class dan object olish (Instantiating a Class)



Difference between object and class

No.	Object	Class
1.	Object is an **instance** of a class.	Class is a **blueprint or template** from which objects are created.
2.	Object is a **real world entity** such as pen, laptop, mobile, bed, keyboard, mouse, chair etc.	Class is a **group of similar objects**.
3.	Object is a **physical** entity.	Class is a **logical** entity.
4.	Object is created through **new keyword** mainly e.g. Student s1=new Student();	Class is declared using **class keyword** e.g. class Student{}
5.	Object is created **many times** as per requirement.	Class is declared **once**.
6.	Object **allocates memory when it is created**.	Class **doesn't allocated memory when it is created**.
7.	There are **many ways to create object** in java such as new keyword, newInstance() method, clone() method, factory method and deserialization.	There is only **one way to define class** in java using class keyword.