Java Program: Course 3: Plan

STACK ROUTE

Program	Courses	Learning Sprints	
Build job-ready skills	**Build competencies**	**Perform specific tasks**	**Schedule**

Program — Build job-ready skills

Java Foundation Program

Courses — Build competencies

- Problem Solving and Computational Thinking using Java
- Introduction to Programming in Java
- **Object Oriented Programming in Java**
- Data Structures and Algorithms in Java
- Advanced Programming in Java
- Relational Database Management Systems (RDBMS) Concepts and SQL
- Java Programming Project

Learning Sprints — Perform specific tasks

- **Think and model real world as Objects**
- Introduction to Encapsulation and Data Abstraction
- Implement Encapsulation and Data Abstraction in your Java program
- Create new class that inherits from parent class
- Introduction to polymorphism
- Implement Inheritance and Polymorphism using Abstract class and Interface
- Implementing Wrapper Class and Inner Class
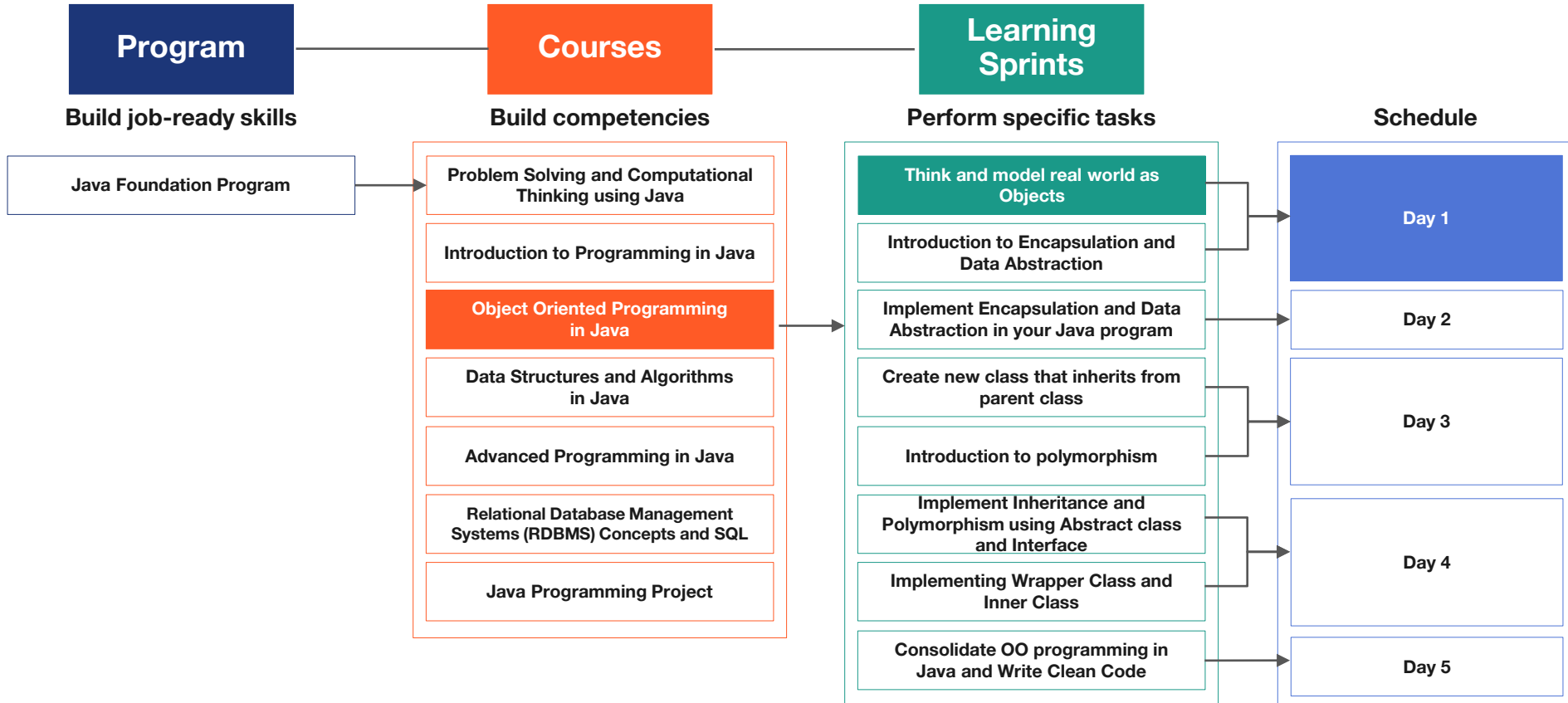- Consolidate OO programming in Java and Write Clean Code

Schedule

- Day 1
- Day 2
- Day 3
- Day 4
- Day 5

Think and Tell

What comes to your mind when you hear the word "object"?

Nature and Its Beings

What makes a lion different from other animals?

Objects Around Us

Describe a television.

4

Let Us Discuss

Do objects exist only in the real world?

Can we identify objects in applications that are created through programming?

Objects in a Domain

You wish to open a bank account.

What information will your bank need

to open your account?

Is a bank account an object?
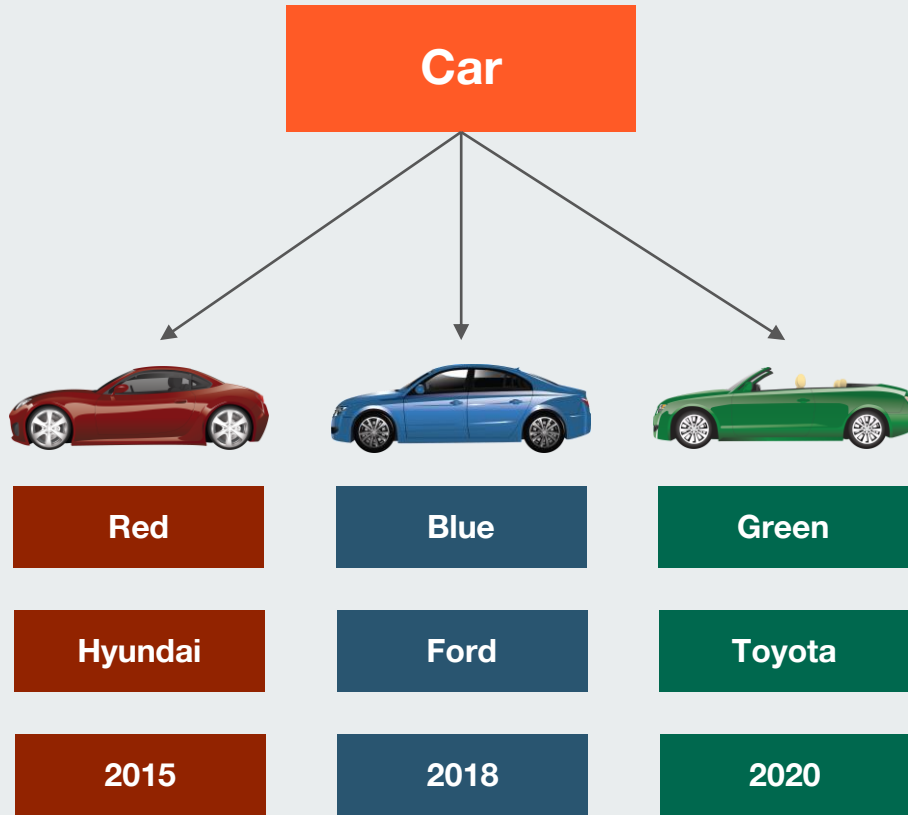

https://www.slideshare.net/MarleneStegerdeRothermel/american-bank-application-form

Objects Around the World

Look at this object and describe its
look, features and purpose.
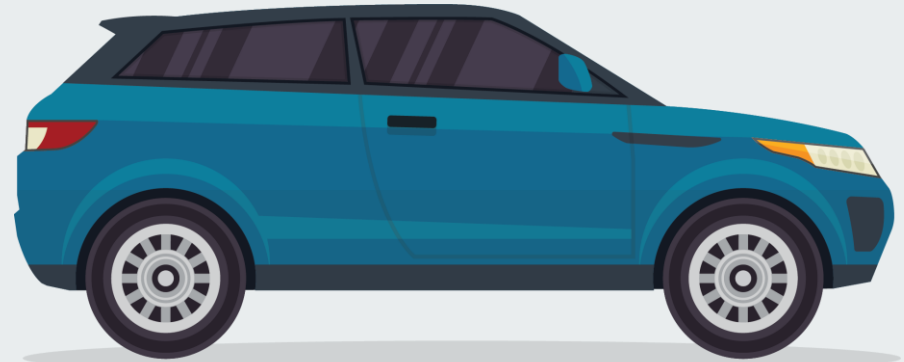
Where do objects come from?

What are the attributes and behavior of objects, such as a lion, television, space craft and a bank account?

Where are the properties of the objects defined?

Think and Model Real World Objects

Learning Objectives

- Identify objects, attributes and behavior

- Declare classes and objects

- Explain class design using class

  diagrams

Identifying Objects and More

- A start-up organization wants to manage its HR operations, like

  - People management

  - Compensation benefits to employees

  - Recruitment

- You, as a software programmer needs to design a part of the application that

  manages the employee compensation benefits.

- Design a model of the application using OOP

Identifying Objects

- As a software programmer, you need to design a part of the application that

  manages the employee compensation benefits for a Startup firm

- Find the nouns in this problem statement

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Object = Noun

</div>

Identifying Attributes

- Attributes help us to uniquely identify objects

- In the same problem statement, identify the attributes of the object "employee"

An employee is uniquely identified by employee Id, name, age, etc.

Identifying Behavior

- Behavior is identified as something an object can do

- In the object "employee" identify the behavior

<div style="background-color:orange; text-align:center;">

Behavior = Verb

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Relationship Between Objects

- A composition is a class that refers to one or more objects of other classes

- It is one of the fundamental concepts of object-oriented programming

**Employee**   **Has-A**   **Address**

What is a Class?

- A class is a structure from where an object is built

- It contains the blueprint of building an object and information about what defines an object

- There is a correlation between a class and an object

- Objects exist when a program is being run

- A class file is written by a programmer to allow the computer to use or construct new objects

Creating Multiple Objects

Sam, Tom and Gary are three different objects created from the "Employee Class"

Employee

Sam with empld: 101 aged 34

Tom with empld :104 aged 24

Gary with empld :108 aged 40
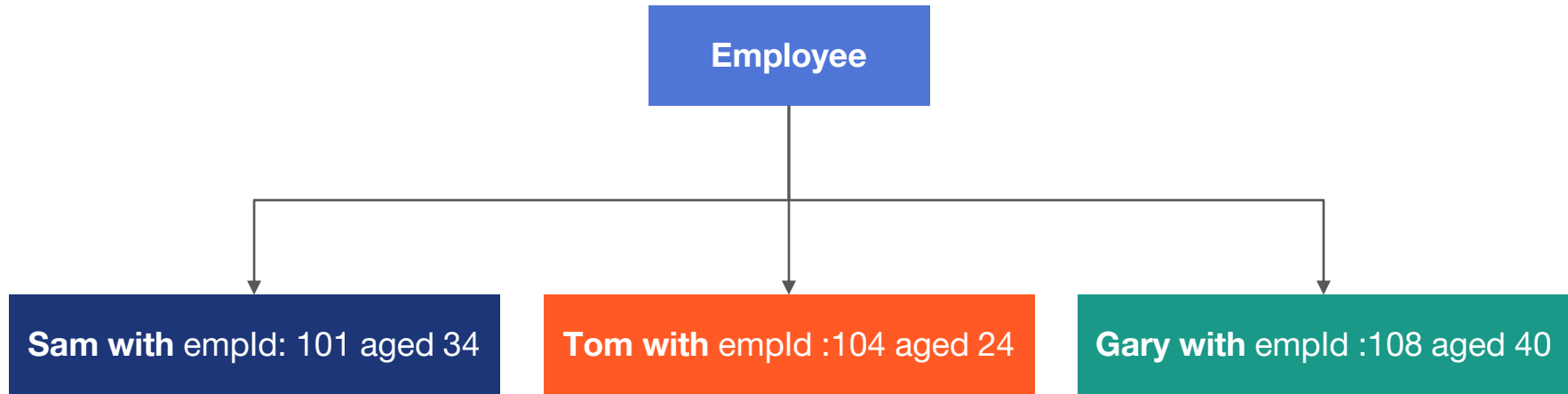
Interactive Demo

Visualization – Class Diagrams

As a software programmer, you need to design a part of the application that manages the employee compensation benefits.

Key Takeaways

- Objects, attributes and behavior

- Distinguish classes and objects

- Design a class and its objects in a

  scenario