



## Information Technology Department - State Polytechnic of Malang

### Exercise 1

### Course: Object Based Programming

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**Look for any object in the real world as many as 5**

**An example is provided with a TV:**

- State:
  - Brand
  - Screen size
  - Channel
  - Volume
  
- Behavior:
  - Turn on
  - Turn off
  - Switch channels
  - Increase volume
  - Reduce volume

Would you like to select specific objects to analyze, or should I suggest some examples for different objects?

Sure! Here's an expanded approach with five real-world objects, listing their states (attributes) and behaviors (methods):

## 1. Smartphone

### - State (Attributes):

- Brand (e.g., Apple, Samsung)
- Model (e.g., iPhone 14, Galaxy S23)
- Battery level (e.g., 85%)
- Operating system (e.g., iOS, Android)
- Screen size (e.g., 6.5 inches)
- Storage capacity (e.g., 128GB, 256GB)
- Network connection (e.g., 5G, Wi-Fi)
- Camera resolution (e.g., 12MP)

### - Behavior (Methods):

- Make a call
- Send a text message
- Open an app
- Take a photo
- Adjust volume
- Charge battery
- Connect to the internet
- Set an alarm
- Lock/unlock screen

## 2. Car

### - State (Attributes):

- Brand (e.g., Toyota, Tesla)
- Model (e.g., Corolla, Model 3)
- Fuel type (e.g., Gasoline, Electric)
- Fuel level (e.g., 50%)
- Speed (e.g., 60 mph)
- Transmission type (e.g., Manual, Automatic)
- Tire pressure (e.g., 32 PSI)
- Color (e.g., Red, Black)

### - Behavior (Methods):

- Start engine
- Accelerate

- Brake
- Turn on headlights
- Shift gears
- Honk horn
- Open/close doors
- Turn on windshield wipers
- Refuel

### 3. Laptop

- State (Attributes):
  - Brand (e.g., Dell, MacBook)
  - Processor (e.g., Intel i7, M1 chip)
  - RAM (e.g., 16GB)
  - Storage (e.g., 512GB SSD)
  - Battery level (e.g., 70%)
  - Screen size (e.g., 15 inches)
  - Operating system (e.g., Windows, macOS)
  - Wi-Fi connection (e.g., Connected, Disconnected)
- Behavior (Methods):
  - Power on/off
  - Open/close programs
  - Connect to Wi-Fi
  - Adjust brightness
  - Type on keyboard
  - Use trackpad/mouse
  - Charge battery
  - Put to sleep mode
  - Update software

### 4. Refrigerator

- State (Attributes):
  - Brand (e.g., LG, Whirlpool)
  - Temperature (e.g., 4°C)
  - Capacity (e.g., 300 liters)
  - Door status (e.g., Open, Closed)

- Energy consumption (e.g., 100 watts)
- Number of shelves (e.g., 4)
- Freezer compartment (Yes/No)

- Behavior (Methods):

- Cool items
- Freeze items
- Adjust temperature
- Turn on/off light
- Auto-defrost
- Make ice
- Open/close doors
- Beep when the door is left open

## 5. Washing Machine

- State (Attributes):

- Brand (e.g., Samsung, Whirlpool)
- Load capacity (e.g., 7kg)
- Water level (e.g., Full, Half)
- Wash cycle type (e.g., Quick wash, Heavy-duty)
- Spin speed (e.g., 1200 RPM)
- Detergent type (e.g., Liquid, Powder)
- Power status (e.g., On, Off)

- Behavior (Methods):

- Start wash cycle
- Pause cycle
- Drain water
- Spin clothes
- Add fabric softener
- Change wash mode (e.g., Delicate, Regular)
- Rinse clothes
- Alert when finished

## 1. Object: Smartwatch

- **State/Attributes:** ◦ Brand
  - Battery life
  - Display type (OLED, LCD)
  - Connectivity (Bluetooth, Wi-Fi)
  - Strap material
- **Behavior/Methods:** ◦ Track heart rate ◦ Display notifications ◦ Monitor sleep ◦ Measure steps taken ◦ Set alarms

## 2. Object: Tablet

- **State/Attributes:** ◦ Brand ◦ Screen size ◦ Storage capacity ◦ Operating System (OS) ◦ Battery level
- **Behavior/Methods:** ◦ Browse the internet ◦ Play videos ◦ Install apps ◦ Take screenshots ◦ Charge battery

## 3. Object: Wireless Earbuds

- **State/Attributes:** ◦ Brand
  - Battery life
  - Connectivity (Bluetooth version)
  - Case material
  - Noise cancellation feature
- **Behavior/Methods:** ◦ Play/Pause music ◦ Answer/End calls ◦ Adjust volume ◦ Activate voice assistant ◦ Charge in case

## 4. Object: Drone

- **State/Attributes:** ◦ Brand ◦ Camera resolution ◦ Battery level ◦ Flight range ◦ GPS status

- **Behavior/Methods:**
  - Take aerial photos/videos
  - Fly up/down
  - Hover in place
  - Return to home
  - Rotate (yaw)

## 5. Object: Smart Speaker

- **State/Attributes:**
  - Brand
  - Speaker quality
  - Voice assistant type (e.g., Alexa, Google Assistant)
  - Connectivity (Wi-Fi, Bluetooth)
  - Microphone sensitivity
- **Behavior/Methods:**
  - Play music
  - Set timers
  - Control smart home devices
  - Answer questions
  - Provide weather updates