CPSC-224
Software Development
Behavior Diagrams

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Announcement

- ❑ **Team Form Result on Canvas**

- ❑ **Final Project Part1**

- ❑ **HW3 Uploaded on Canvas**

- ❑ **HW0 –** { **Career Dev 02 – Resume Revision**

  Career Dev 02a – I visited the ProRep Document

Daily Attendance (01)

❑ **Scan the QR Code**
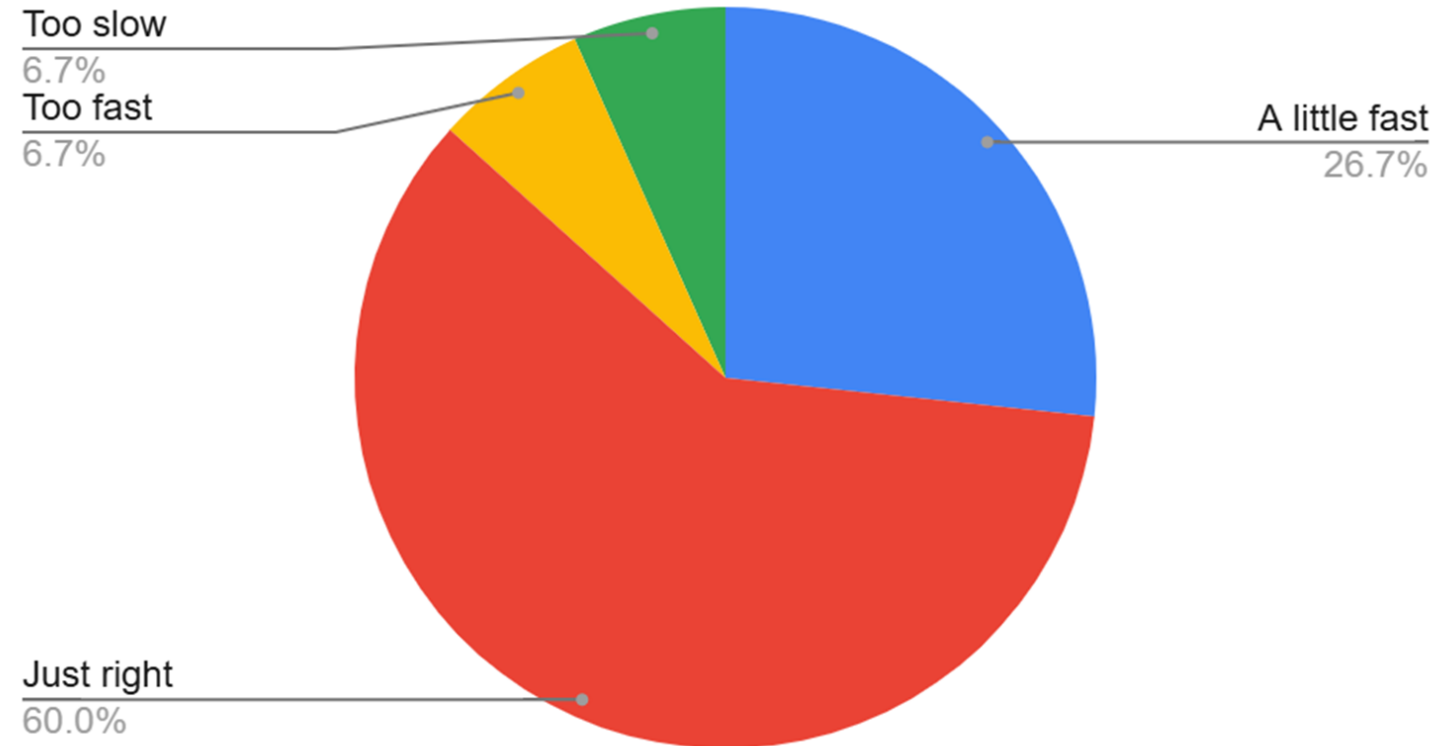
Daily Attendance (02)

❏ **Scan the QR Code**

Survey Result (01)

Do you feel the pace of the class is: *

1. Too slow

2. A Little slow

3. Just right

4. A little fast

5. Too fast

Count of Do you feel the pace of the class is:

Too slow
6.7%
Too fast
6.7%
A little fast
26.7%
Just right
60.0%

Survey Result (01)

What is your preferred duration for the study abroad program? *
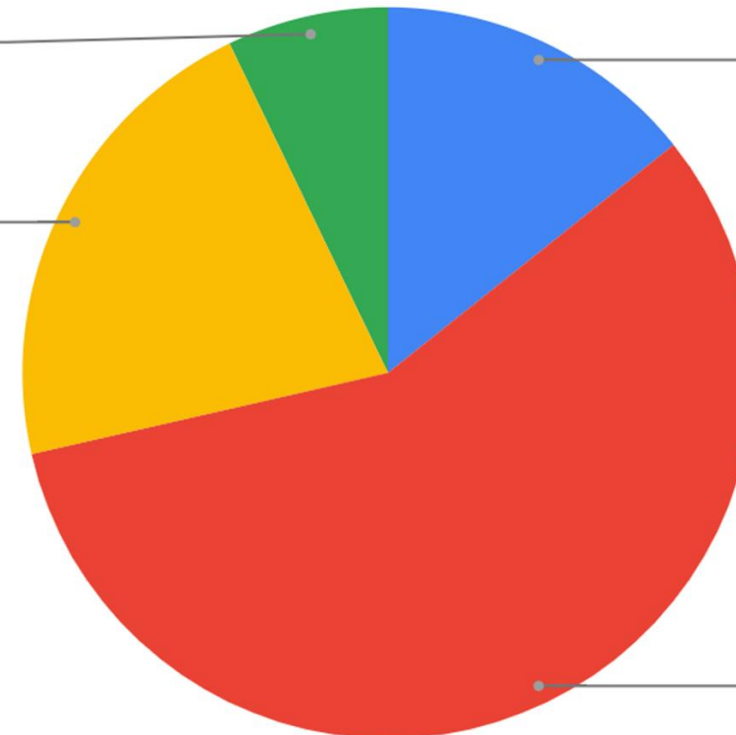
1. One week

2. Two weeks

3. Three weeks

4. Four weeks

Count of What is your preferred duration for the study abroad program?

Two weeks
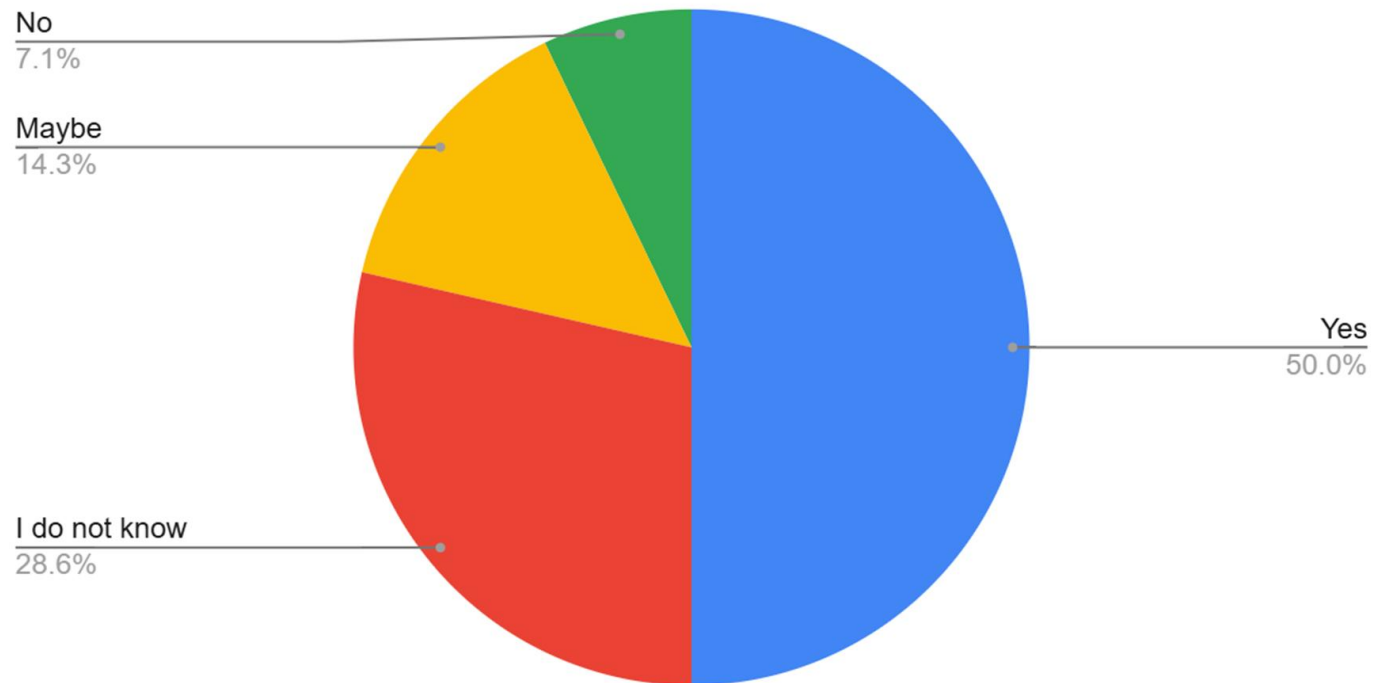7.1%

Three weeks
14.3%

One week
21.4%

Four weeks
57.1%

Survey Result (01)

Are you comfortable in a country where English may not be the primary language of communication?

1. Yes

2. No

3. Maybe

4. I do not know

Count of Are you comfortable in a country where English may not be the primary language of communication?

- No 7.1%
- Maybe 14.3%
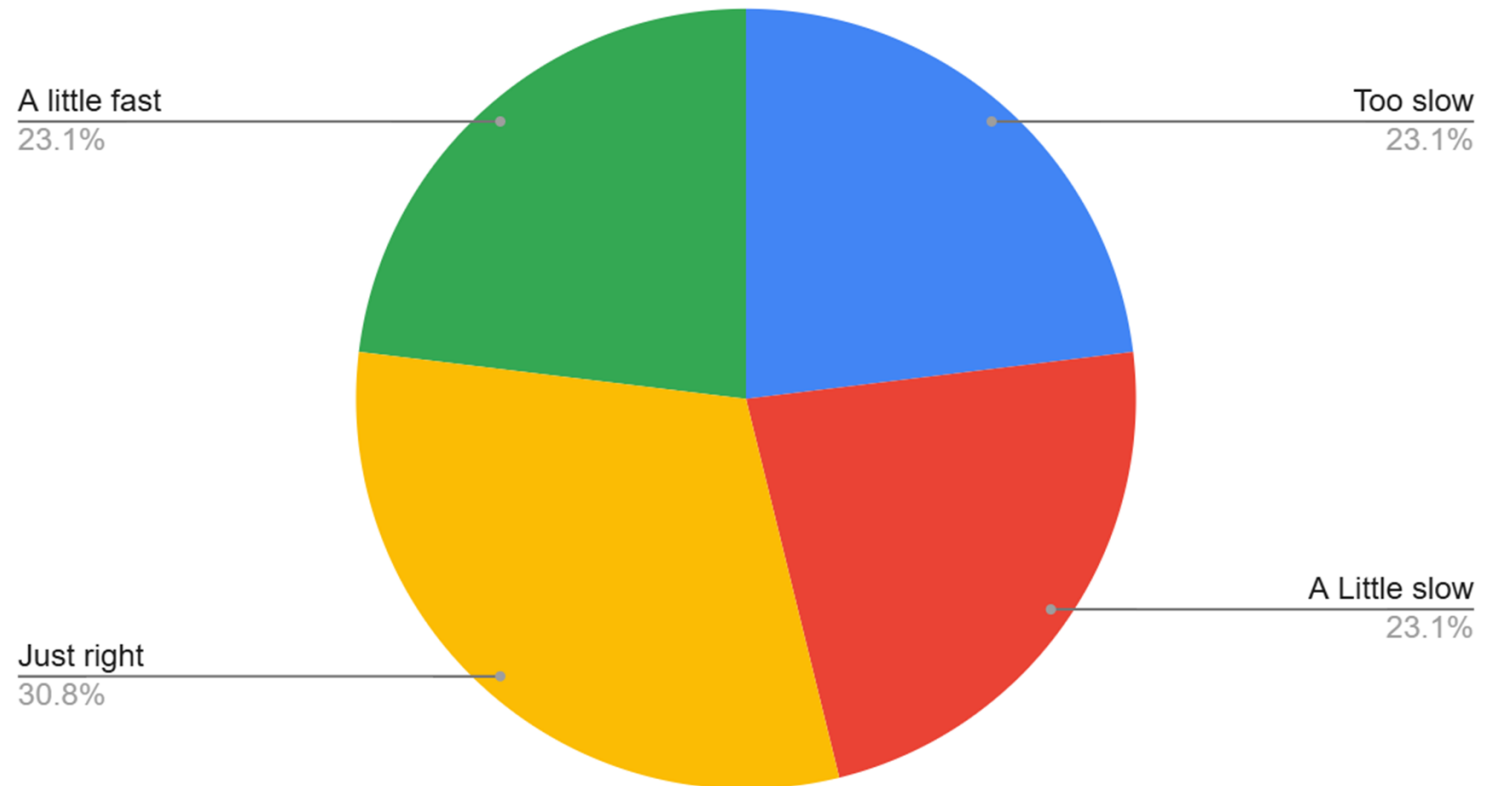- Yes 50.0%
- I do not know 28.6%

Survey Result (02)

Do you feel the pace of the class is:

1. Too slow

2. A Little slow

3. Just right

4. A little fast

5. Too fast

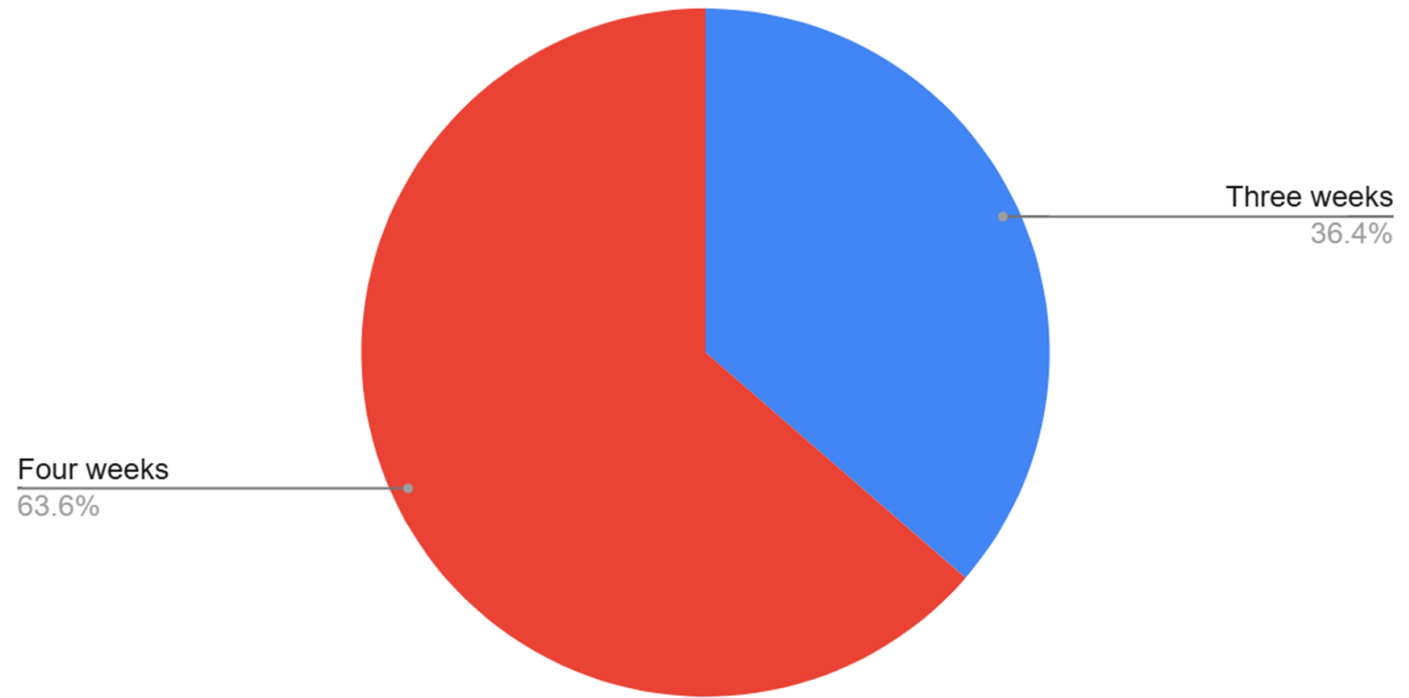Count of Do you feel the pace of the class is:

A little fast
23.1%

Too slow
23.1%

A Little slow
23.1%

Just right
30.8%

Survey Result (02)

What is your preferred duration for the study abroad program? *

1. One week

2. Two weeks

3. Three weeks

4. Four weeks

Count of What is your preferred duration for the study abroad program?

Three weeks
36.4%

Four weeks
63.6%

Survey Result (02)

Are you comfortable in a country where English may not be the primary language of communication?

1. Yes

2. No

3. Maybe

4. I do not know

Count of Are you comfortable in a country where English may not be the primary language of communication?

- I do not know 9.1%
- Yes 36.4%
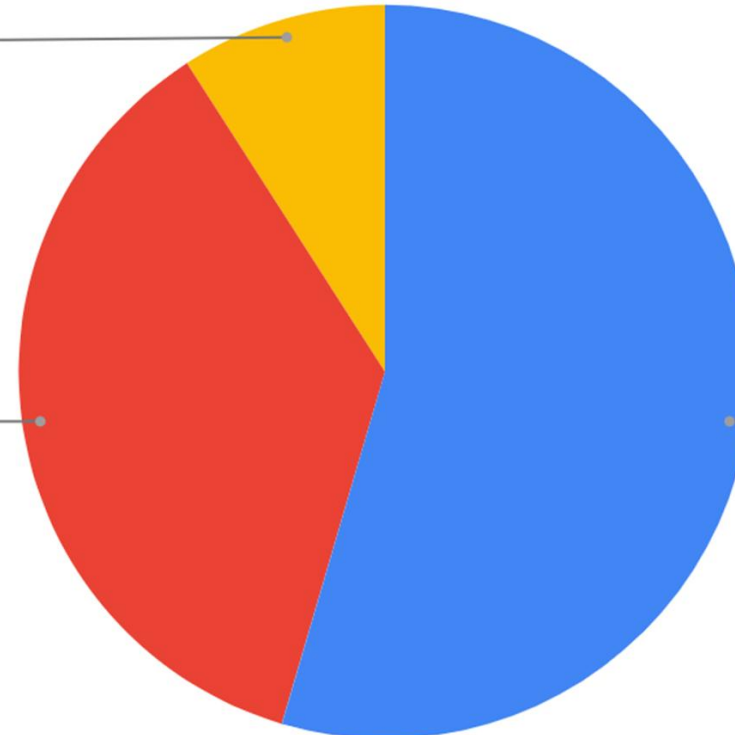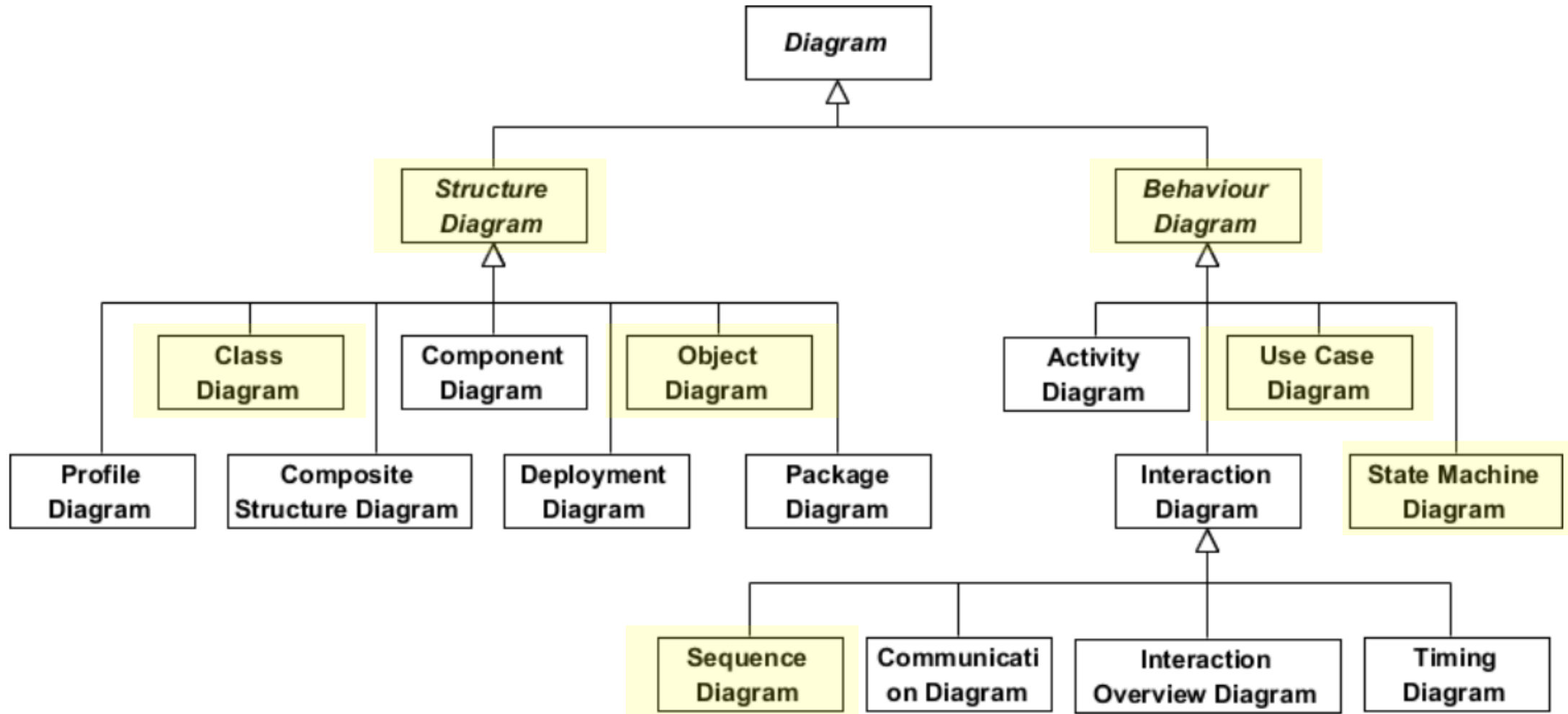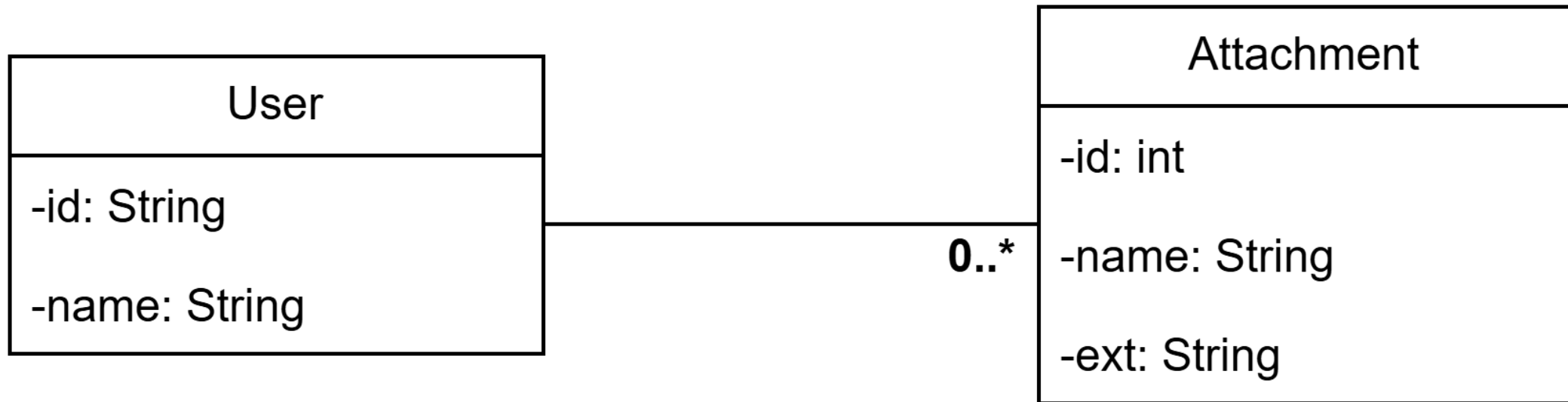- Maybe 54.5%

UML Diagrams

Class Diagram Example

Object Diagram Example
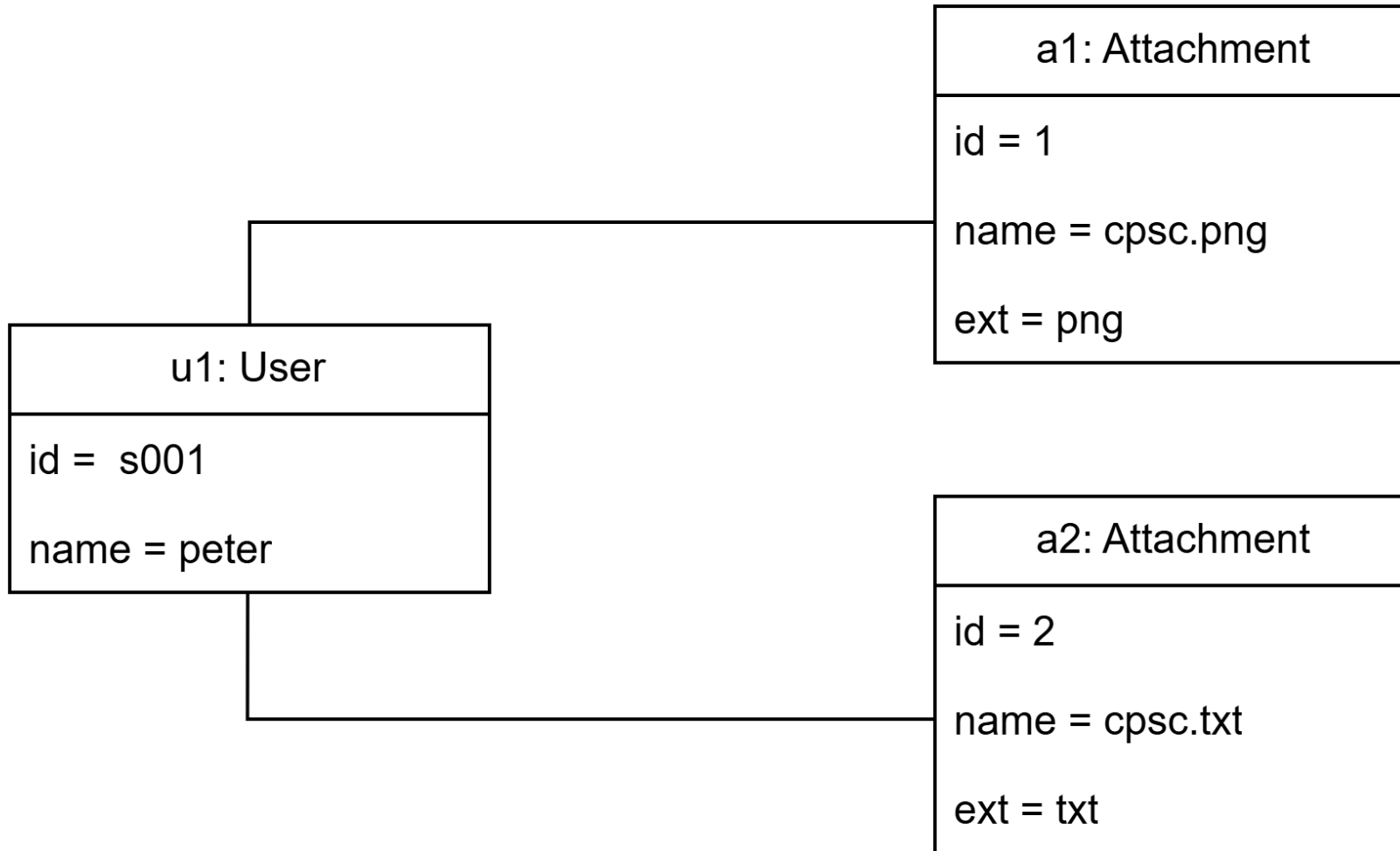
```
a1: Attachment
─────────────
id = 1

name = cpsc.png

ext = png
```

```
u1: User
─────────────
id =  s001

name = peter
```

```
a2: Attachment
─────────────
id = 2

name = cpsc.txt

ext = txt
```
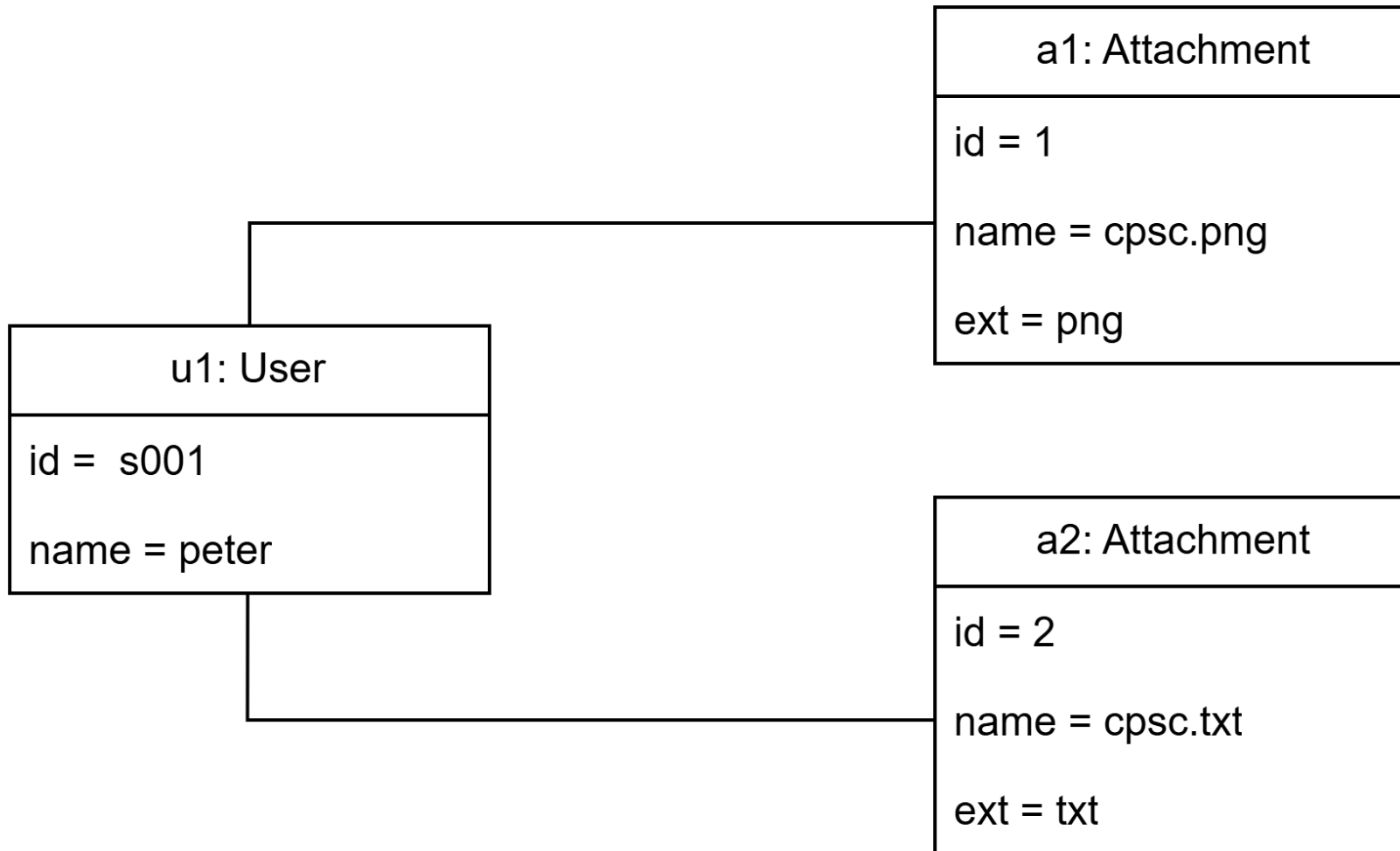
A UML Object Diagram can be seen as :

A representation of how classes are utilized at a particular state

Object Diagram Example

a1: Attachment
id = 1
name = cpsc.png
ext = png

u1: User
id = s001
name = peter

a2: Attachment
id = 2
name = cpsc.txt
ext = txt

A UML Object Diagram can be seen as :

A representation of how classes are utilized at a particular state

State Machine Diagram

❖ **A State Machine Diagram in UML models the dynamic behavior of an object in response to events. It represents states of an object, the transitions between those states, and the events that trigger those transitions.**
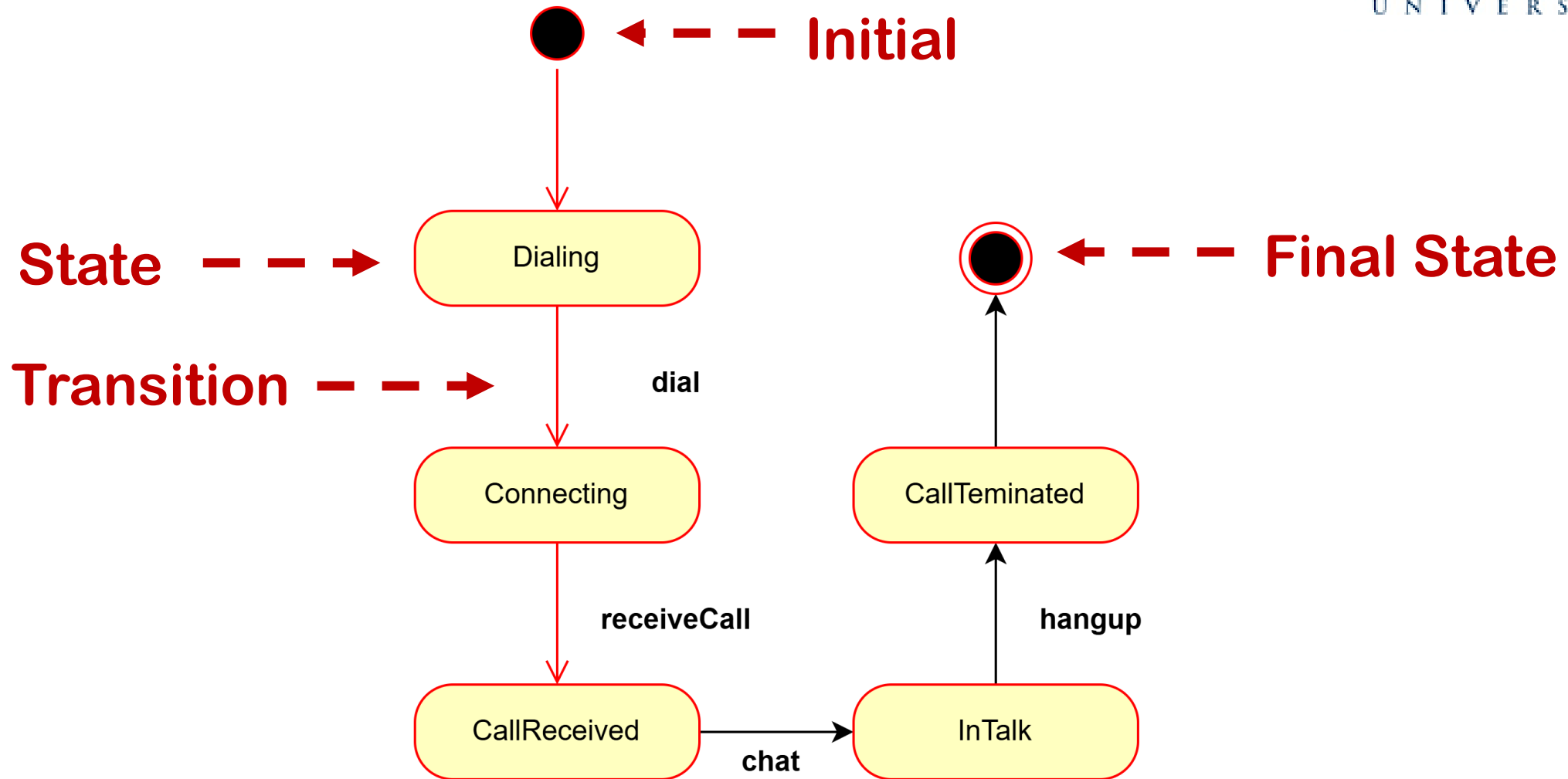
State Machine Diagram

Key Components:

1) **States** – Represent the condition of an object at a specific moment.

2) **Transitions** – Show how an object moves from one state to another.

3) **Events** – Trigger transitions between states.

4) **Actions** – Operations executed during a transition or within a state.

5) **Initial State** – Denoted by a filled circle (●), representing where the object's lifecycle starts.

6) **Final State** – Denoted by a target (◎), representing the termination of the state machine.
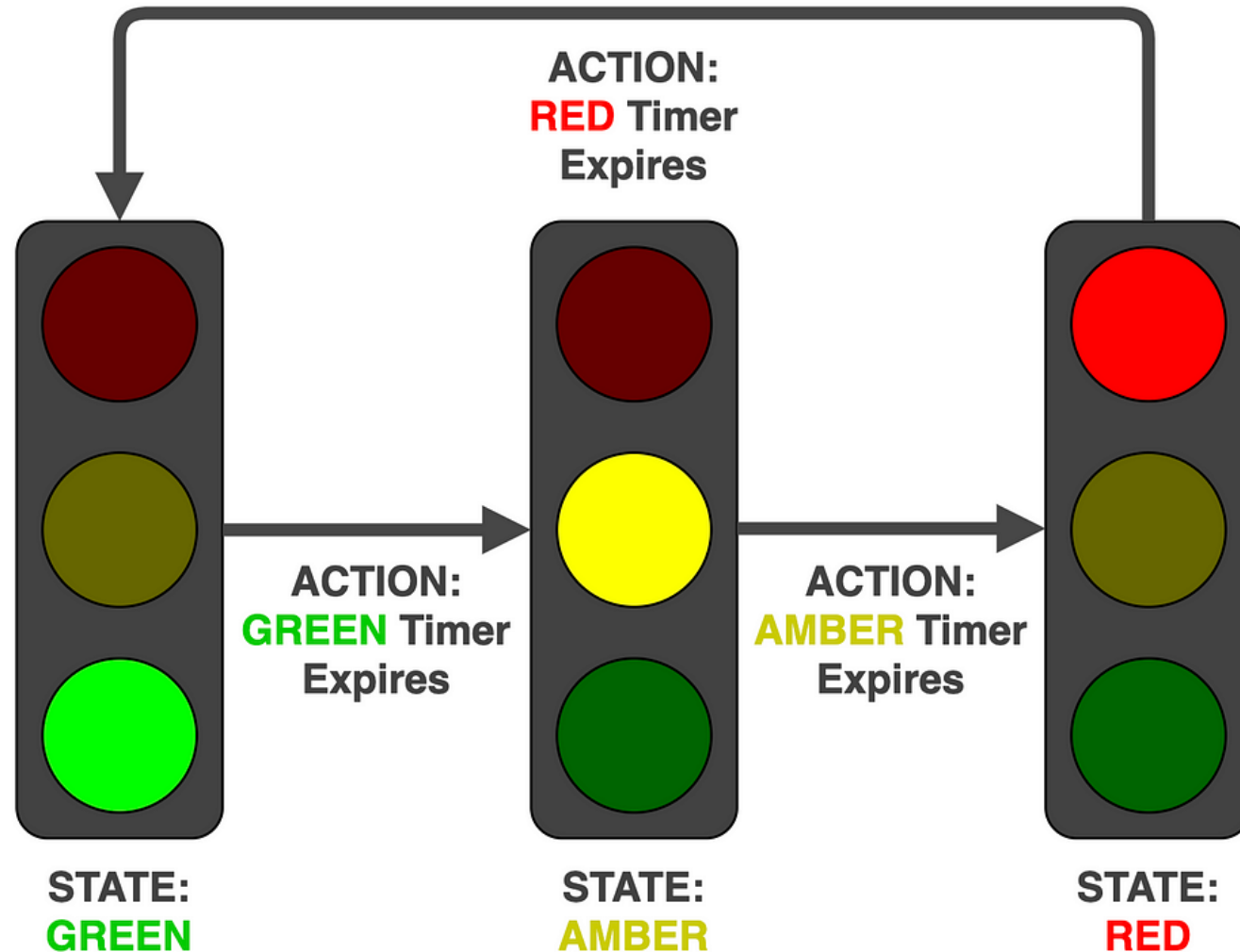
Why Do We Need a State Machine?

❖ **We need state machines because they provide a structured way to model and manage complex systems with distinct states and transitions, making them easier to understand, debug, and maintain, especially in event-driven or real-time applications.**
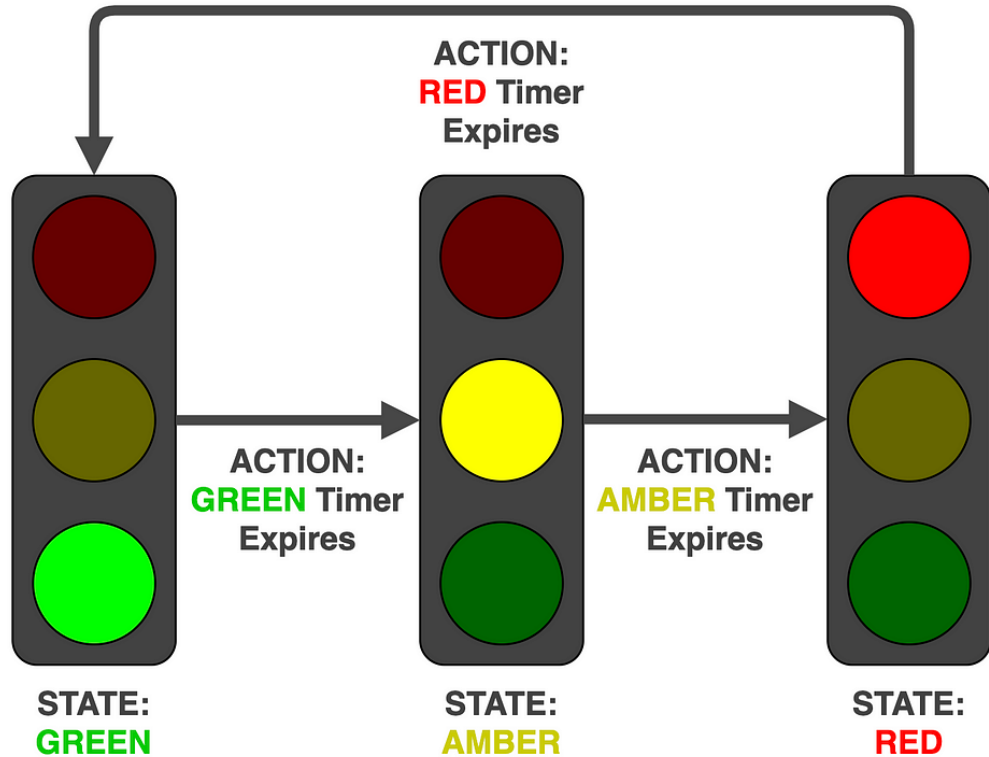
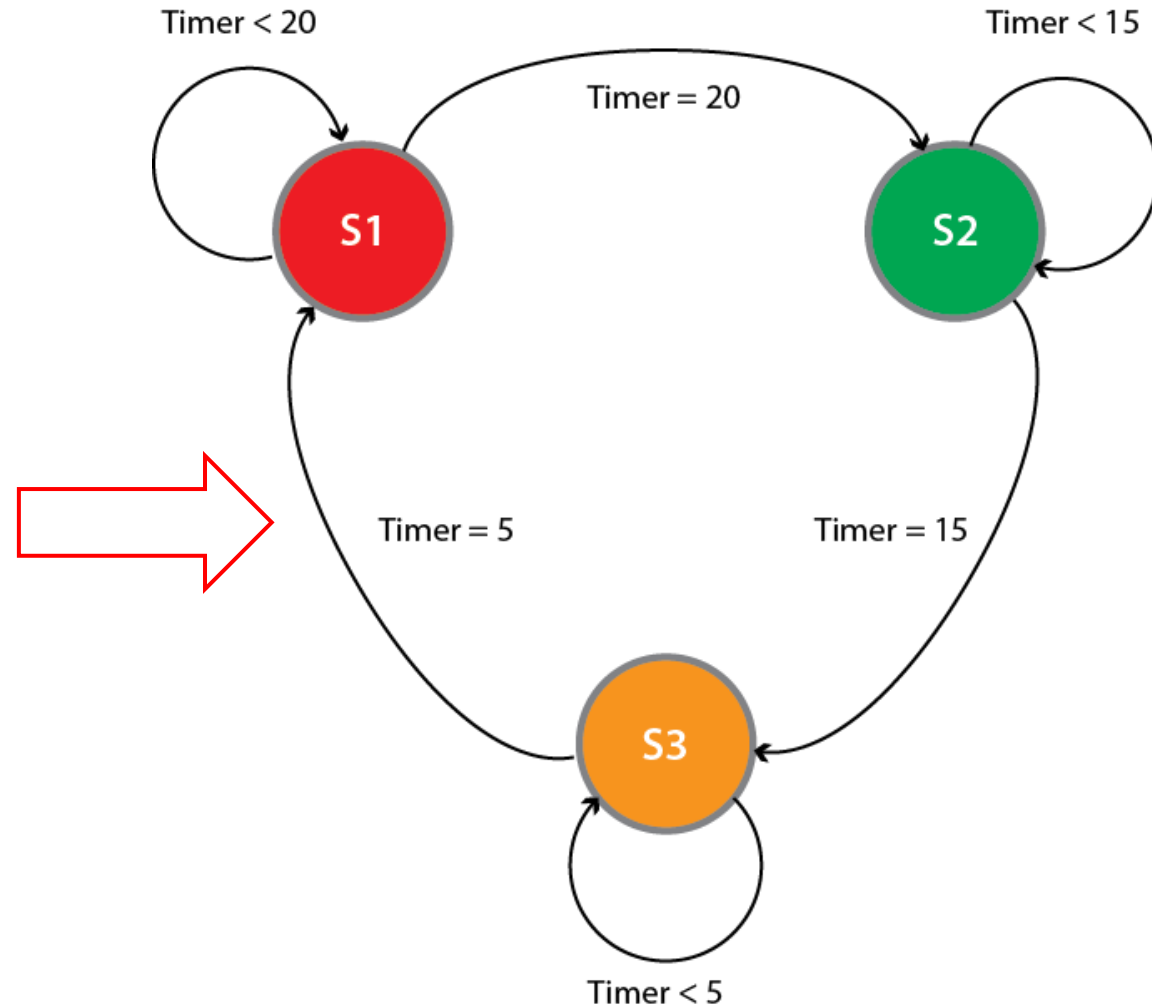# State Machine Diagram Example

State Machine and Traffic Lights

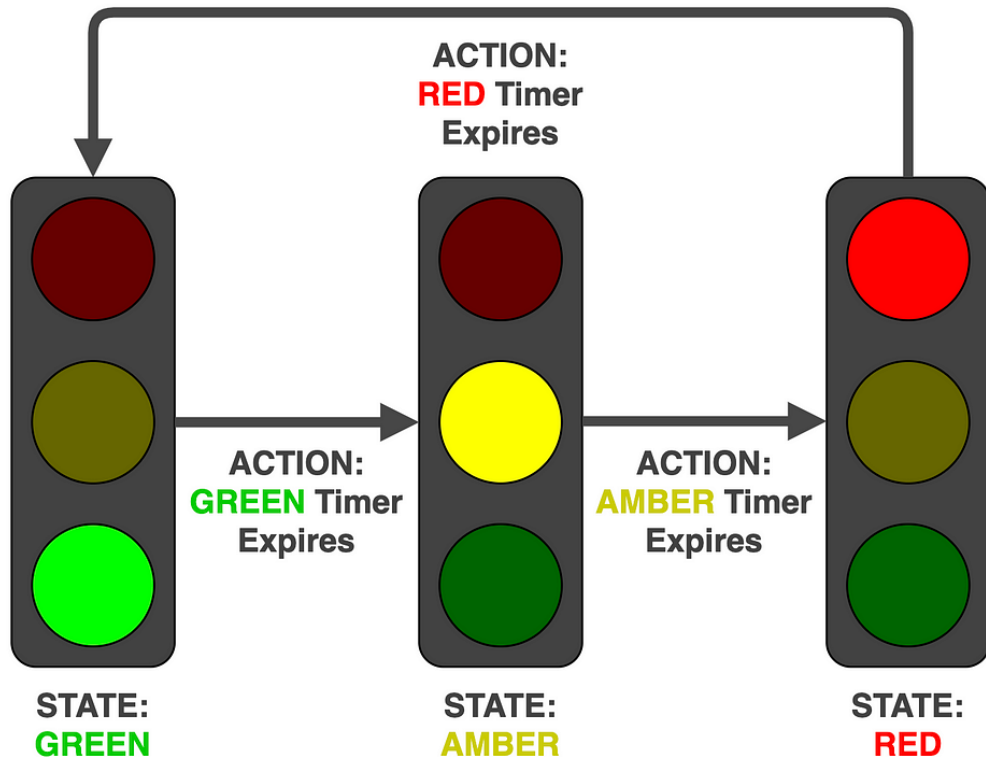# State Machine and Traffic Lights Exercise

How to draw a traffic lights state machine diagram?

State Machine and Traffic Lights Exercise

Any Questions?