

# DETECTIVE Prolog

Zahra Jaleh & Vahid Mousavinezhad



# Overview

## Detective Prolog

murder mystery game based on using logic-based deduction programming.

### Idea:

Who the murderer is based on a list of facts and rules.



# PROJECT DESCRIPTION

- Prolog uses the provided clues to infer which suspect is the murderer.
- The Player is assumed to be a detective
  - ❑ tries to solve the puzzle by entering the correct pieces of code instead of the “?”.



# Who? How? When?



**Murder weapon**

**Suspect**

**Weekdays**

**Motive**

**Location**

**Victim**

## Facts

Victim	Suspect	Weapon	Location	Motive	Weekday
Mr. Snoop	Mrs. Scarlett	Knife	Kitchen	Revenge	Friday
Mrs. Rihanna	Mr. Mustard	Wrench	Library	Heritage	Saturday
	Mr. Green	Rope	Dining room	Money	Sunday
	Mrs. Peacock	Pistol	Garden	Passion	
	Mr. Plum	Candlestick	Garage	Hatred	
	Miss Peach	Poison	Pool		



# Facts

```
1 % Declare the victims
2 victim(snoop).
3 victim(rihanna).
4
5 % Declare the men
6 man(snoop).
7 man(mustard).
8 man(green).
9 man(plum).
10 man(brunette).
11
12 % Declare the women
13 woman(rihanna).
14 woman(scarlett).
15 woman(peacock).
16 woman(peach).
```

```
18 % Declare the possible murder weapons
19 weapon(knife).
20 weapon(wrench).
21 weapon(rope).
22 weapon(pistol).
23 weapon(candlestick).
24 weapon(poison).
25
26 % Declare the possible days
27 day(friday).
28 day(saturday).
29 day(sunday).
```



/+

- Which is used for negation in Prolog.
- It allows for non-monotonic reasoning.
- Prolog can reason with incomplete or uncertain information.

# Rules

## Rule1:

Suspects are men and women minus victims

```
47 % Declare the suspects  
48 suspect(X):- man(X), \+victim(X).  
49 suspect(X):- woman(X), \+victim(X).
```

## Rule2:

Man or woman has a weapon

```
51 % Declare which suspect has which weapon  
52 has_weapon(X, Y):- man(X), woman(X), weapon(Y).
```

Example:

```
54 has_weapon(mustard, pistol).
```





# Level.1

## Clue 1:

"Body found in the house; crime occurred 12 hours prior, says doctor."

## Facts:

```
27 day(friday).  
28 day(saturday).  
29 day(sunday).
```

## Rule:

```
58 date(X) :- day(X), \+ X = saturday, \+ X = sunday.
```



# Level.1

## Clue 2:

"Victim's wife called the police."

## Rule:

```
61 murdered(M) :- victim(M), man(M).
```



# Level.1

## Clue 3:

"Neighbors heard that victim was arguing with a man last night."

## Rule:

```
66 has_argue(X, Y, Z) :- murdered(X), suspect(Y), man(Y), X \= Y, date(Z).
```



# Interact with players

**Clue:** "Victim's wife call the police at 9 o'clock in the morning."

What can we write instead of "?" a clue to indicate the gender of the victim?

```
murdered(M) :- victim(M), ?(M).
```

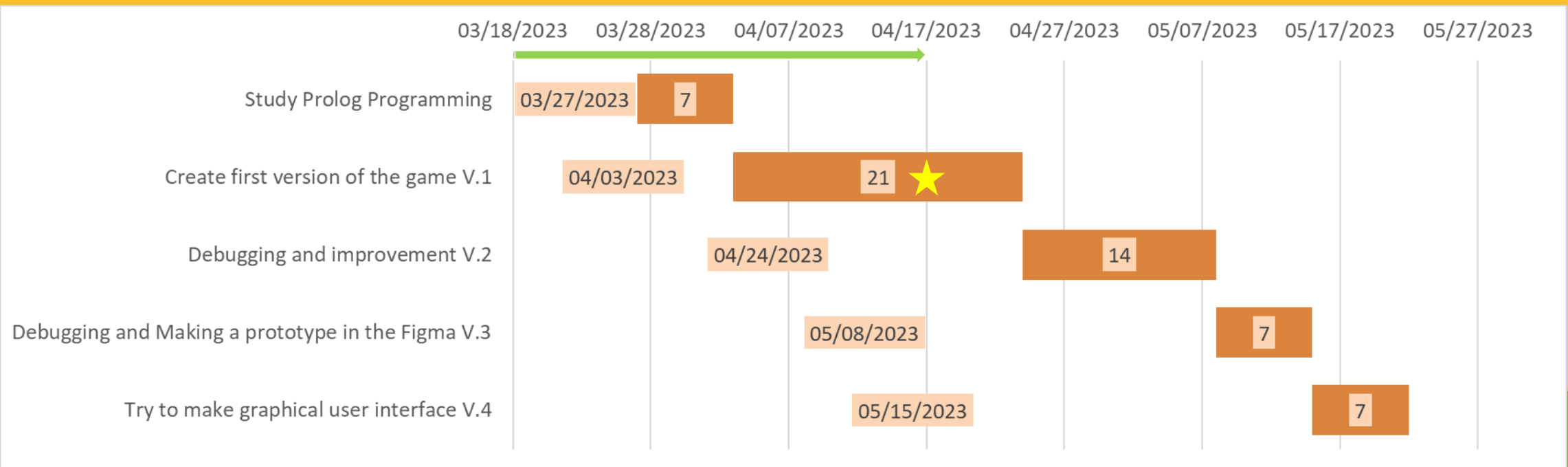
```
input --> man
```

- ❑ **Players receive a point for each correct answer.**

# What do we expect?

- ☐ Create a game in which there is only one murderer for each crime.
  - Different scenarios for each level of difficulty.
- ☐ Interact with players and assign scores based on their responses.
- ☐ Make a graphical user interface.

# Project Timeline



# THANKS

Does anyone have any questions?

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, and infographics & images by **Freepik**