**Batch:  B1**                                                      **Experiment Number: 06**

**Roll Number:16010420133**                          **Name: Soumen samanta**

**Aim of the Experiment:** Goal based agent for solving a murder mystery

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**Program/ Steps:**

man(george).

man(john).

man(robert).

woman(barbara).

woman(christine).

woman(yolanda).


room(bathroom).

room(diningroom).

room(kitchen).

room(livingroom).

room(pantry).

room(study).


weapon(bag).

weapon(firearm).

weapon(gas).
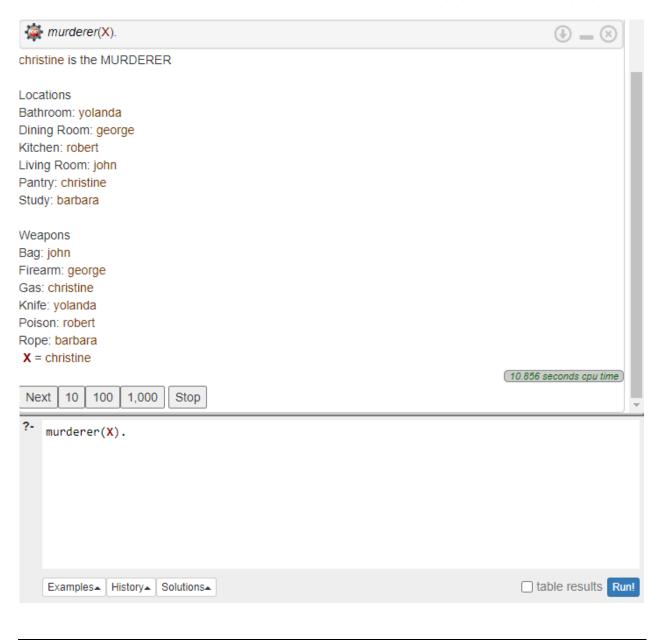
weapon(knife).

weapon(poison).

weapon(rope).

suspect(X) :- man(X).

suspect(X) :- woman(X).

writevals(Bathroom, Diningroom, Kitchen, Livingroom, Pantry, Study, Bag, Firearm, Gas, Knife, Poison, Rope) :-

  nl, write(" Locations "), nl,

  write("Bathroom: "), write(Bathroom), nl,

  write("Dining Room: "), write(Diningroom), nl,

  write("Kitchen: "), write(Kitchen), nl,

  write("Living Room: "), write(Livingroom), nl,

  write("Pantry: "), write(Pantry), nl,

  write("Study: "), write(Study), nl,


  nl, write(" Weapons "), nl,

  write("Bag: "), write(Bag), nl,

  write("Firearm: "), write(Firearm), nl,

  write("Gas: "), write(Gas), nl,

  write("Knife: "), write(Knife), nl,

  write("Poison: "), write(Poison), nl,

  write("Rope: "), write(Rope), nl.


init_suspects(Suspect1, Suspect2, Suspect3, Suspect4, Suspect5, Suspect6) :-

  suspect(Suspect1), suspect(Suspect2), suspect(Suspect3), suspect(Suspect4), suspect(Suspect5), suspect(Suspect6),

  \+ Suspect1 = Suspect2, \+ Suspect1 = Suspect3, \+ Suspect1 = Suspect4, \+ Suspect1 = Suspect5, \+ Suspect1 = Suspect6,

\+ Suspect2 = Suspect3, \+ Suspect2 = Suspect4, \+ Suspect2 = Suspect5, \+ Suspect2 = Suspect6,

\+ Suspect3 = Suspect4, \+ Suspect3 = Suspect5, \+ Suspect3 = Suspect6,

\+ Suspect4 = Suspect5, \+ Suspect4 = Suspect6,

\+ Suspect5 = Suspect6.


murderer(X) :-

init_suspects(Bathroom, Diningroom, Kitchen, Livingroom, Pantry, Study),

init_suspects(Bag, Firearm, Gas, Knife, Poison, Rope),


% Clue 1

% The suspect in the Kitchen is a Man.

% Rope, Knife, Bag, and Firearm were not found in the Kitchen.

man(Kitchen),

\+ Kitchen = Rope, \+ Kitchen = Knife, \+ Kitchen = Bag, \+ Kitchen = Firearm,


% Clue 2

% The suspects in the Bathroom and Study are Women but not Christine

% Barbara and Yolanda were not in Dining Room, Kitchen, Living Room, or Pantry

woman(Study), woman(Bathroom), \+ Bathroom = christine, \+ Study = christine,

\+ Diningroom = barbara, \+ Kitchen = barbara, \+ Livingroom = barbara, \+ Pantry = barbara,

\+ Diningroom = yolanda, \+ Kitchen = yolanda, \+ Livingroom = yolanda, \+ Pantry = yolanda,


% Clue 3

% The Bag was not with Barbara or george

% The suspect with the Bag was not in Bathroom or Dining Room

\+ Bag = barbara, \+ Bag = george,

\+ Bathroom = Bag, \+ Diningroom = Bag,


% Clue 4

% The suspect in the Study was a Woman

% The suspect in the Study had a Rope

woman(Study),

Rope = Study,


% Clue 5

% The suspect in the Living Room was a Man but not Robert

man(Livingroom), \+ Livingroom = robert,


% Clue 6

% The suspect in the Dining Room didn't have the Knife

\+ Diningroom = Knife,


% Clue 7

% Yolanda was not in either the Pantry or the Study

\+ Pantry = yolanda, \+ Study = yolanda,


% Clue 8

% George had the Firearm

Firearm = george,


% Clue 9

% The suspect in the Pantry had the Gas

% The suspect in the Pantry was the Murderer

Pantry = Gas, Pantry = X,

write(X), write(" is the MURDERER"), nl,

writevals(Bathroom, Diningroom, Kitchen, Livingroom, Pantry, Study, Bag, Firearm, Gas, Knife, Poison, Rope).

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**Output/Result:**

⚙ *murderer*(X).                                                    ⊕ ▬ ⊗

christine is the MURDERER

Locations
Bathroom: yolanda
Dining Room: george
Kitchen: robert
Living Room: john
Pantry: christine
Study: barbara

Weapons
Bag: john
Firearm: george
Gas: christine
Knife: yolanda
Poison: robert
Rope: barbara
**X** = christine

10.856 seconds cpu time

| Next | 10 | 100 | 1,000 | Stop |

?- `murderer(X).`

Examples▴  History▴  Solutions▴                    ☐ table results  **Run!**

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## Post Lab Question-Answers:

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## Outcomes:

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## Conclusion (based on the Results and outcomes achieved):

**References:**