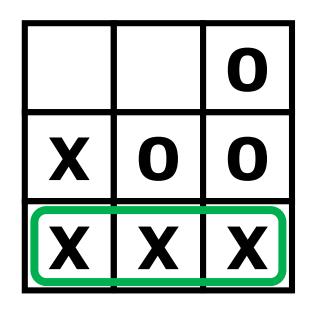
Tic-Tac-Toe but in Prolog

Baskara 16/398499/PA/17460

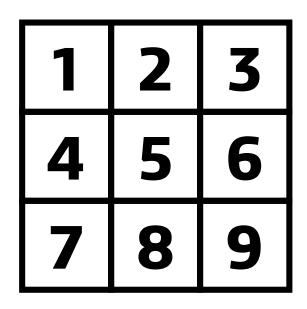
What is Tic Tac Toe?



- "X" and "O"
- 3 X 3 Grid Board
- 3 Symbols in line = Win

A Very Simple Game

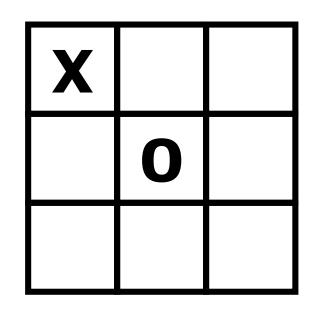
3 x 3 Grid (Defining The Board)



- Terdapat 9 lokasi.
- Tiap lokasi didefinisikan sebagai angka.
- Lokasi pada mulanya kosong.

```
loc(1).
loc(2).
loc(3).
loc(4).
loc(5).
loc(6).
loc(7).
loc(8).
loc(9).
:-dynamic(at/2).
at(" ", 1).
at(" ", 2).
at(" ", 3).
at(" ", 4).
at(" ", 6).
at(" ", 7).
at(" ", 9).
```

"X" and "O" (Defining The Player)



• Terdapat 3 State "X", "O", dan " "

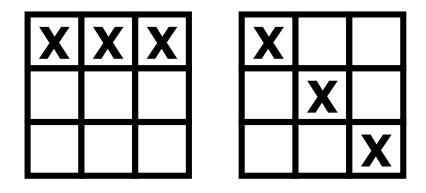
```
state(x).
state(o).
state(" ").
```

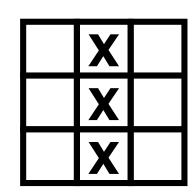
"X" and "O" (Defining The Move)

- Player bermain secara bergantian
- Player dapat menberi tanda "X" atau "O" pada suatu lokasi yang kosong.
- Setiap kali player memberi tanda pada suatu lokasi board di print dan dilakukan pengecekan kondisi menang.

```
mark(A,B):-
   A = state
   B = loc,
   retract(at(" ", B)),
   assert(at(A,B)),
   print_board(),
   check_winner(A).
```

3 Symbols in line = Win (Defining The Win)





- Terdapat 8 kemungkinan kondisi menang:
 - 3 Vertical
 - 3 Horizontal
 - 2 Diagonal
- Kondisi menang dapat dicapai oleh "X" atau "O".

3 Symbols in line = Win (Defining The Win)

```
check_winner(A):-
   get_winner(A),
   writeln(""),
   write("Player "),
   write(A),
   write(" is winning the game !").
get_winner(A):-
   at(A, 1), at(A, 2), at(A, 3);
   at(A, 4), at(A, 5), at(A, 6);
   at(A, 7), at(A, 8), at(A, 9);
   at(A, 1), at(A, 4), at(A, 7);
   at(A, 2), at(A, 5), at(A, 8);
   at(A, 3), at(A, 6), at(A, 9);
   at(A, 1), at(A, 5), at(A, 9);
   at(A, 3), at(A, 5), at(A, 7).
```

Additional Code

- Procedure untuk memulai game (start).
- Procedure untuk mencetak kondisi board saat ini (print_board).