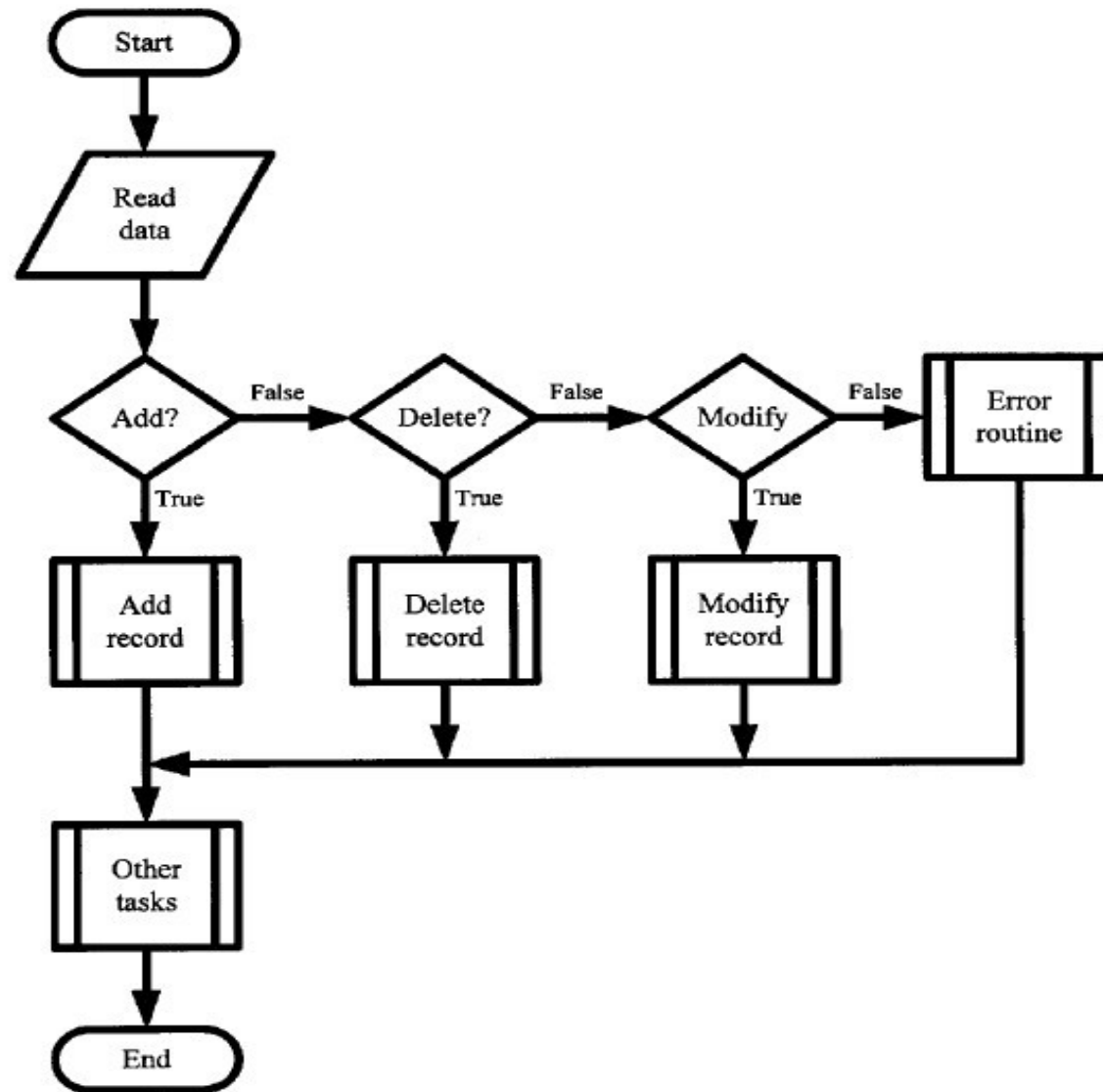
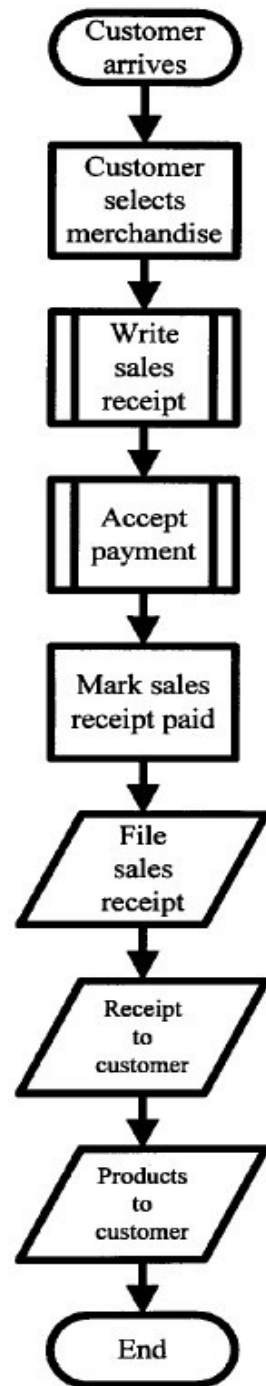


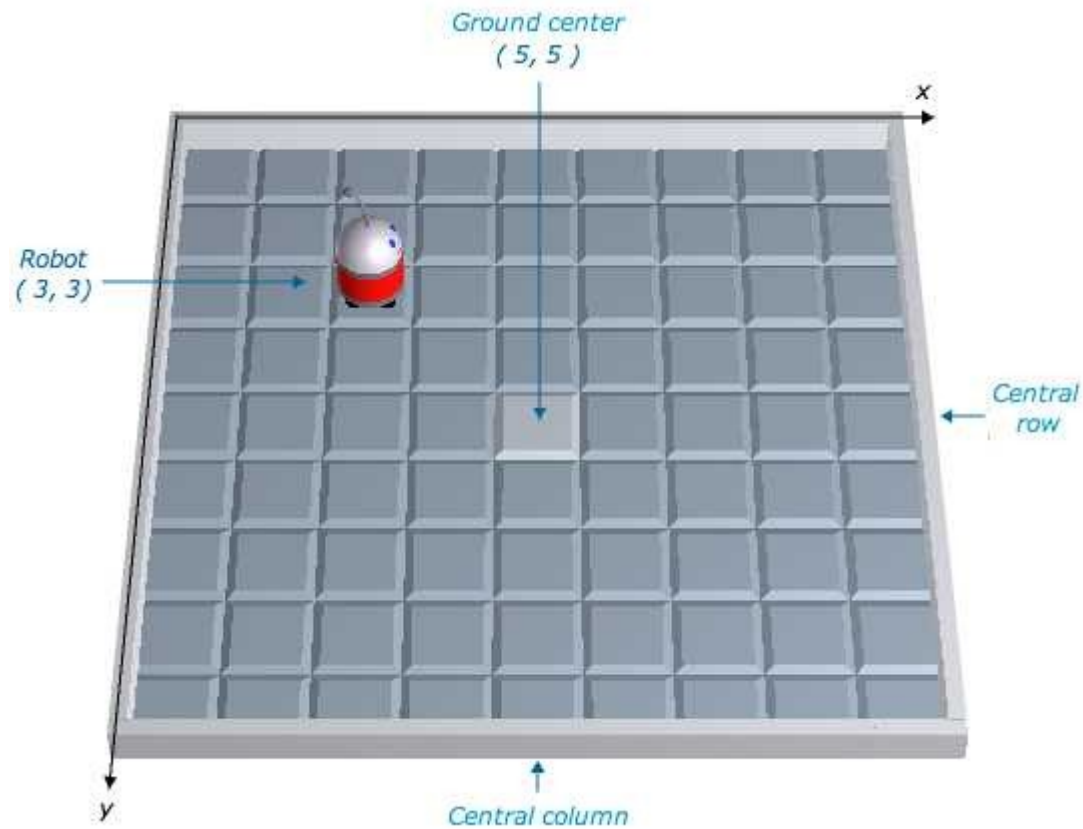
# Contoh Subrutin

# Subrutin Pengolahan Data





# Robot Posisi & Arah



Posisi pada lantai ditentukan dengan koordinat X,Y dengan nilai positif integer.

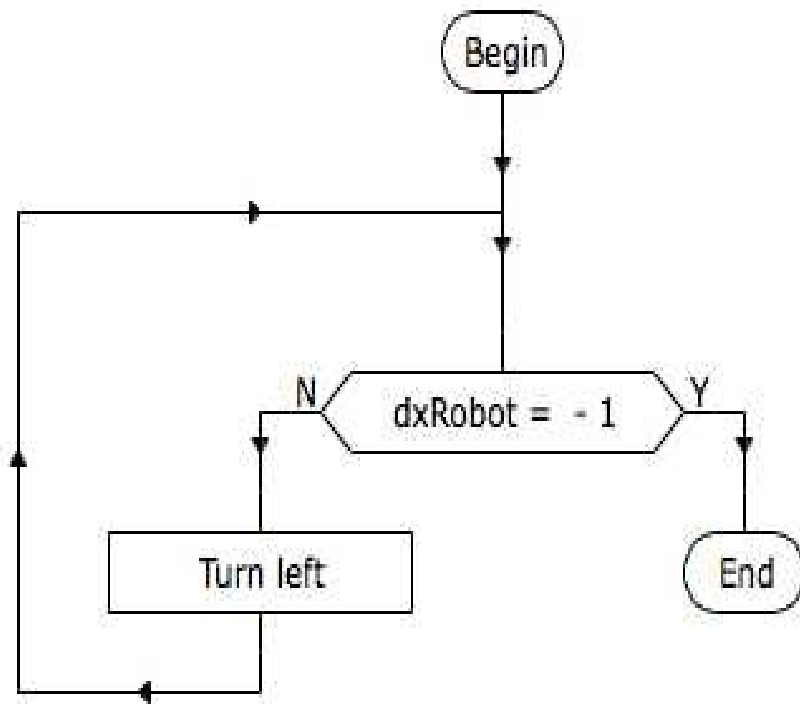
\* Posisi Robot :

Pada program nantinya, posisi robot ditentukan oleh 2 kunci, xRobot dan yRobot. xRobot dan yRobot memiliki nilai dimana Robot berada.

\* Arah Robot :

Arah robot ditentukan oleh dxRobot dan dyRobot. Nilainya diambil dari variasi xRobot dan yRobot ketika robot bergerak ke lantai berikutnya:

- if robot menghadap kanan : dxRobot = 1 dan dyRobot = 0
- if robot menghadap kiri : dxRobot = -1 dan dyRobot = 0
- if robot menghadap depan : dxRobot = 0 dan dyRobot = 1
- if robot menghadap belakang : dxRobot = 0 dan dyRobot = -1



TurnTowardsGroundLeft subroutine flowchart :

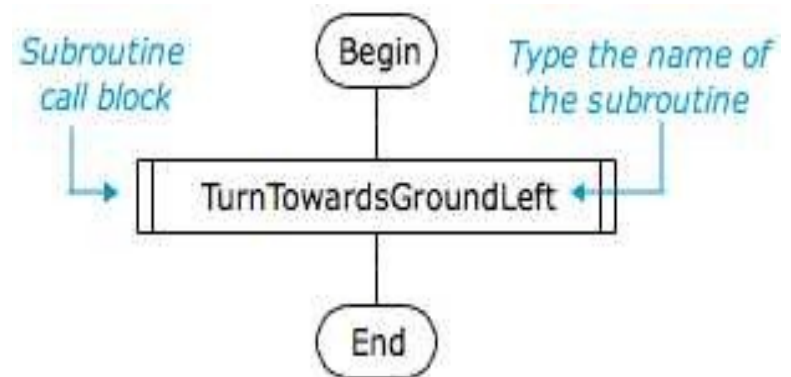
A subroutine flowchart is built the same way as the main program flowchart. It must contain one and only one begin block and at least one end block.

Here, the flowchart contains the keyword dxRobot. When the robot is facing left, dxRobot value is -1.

If dxRobot is different from - 1, we rotate the robot by 90° then we redo the test.

Subroutine execution : a subroutine call block execution causes the execution of the subroutine begin block, then the subroutine is executed until its end block, then the execution continues at the block following the subroutine call block.

- Initialize the program (choose Execution > Initialization menu or click INIT button)
- Run the program.
- After execution, click the robot to change its initial direction, run again the program : in any case, the robot faces left of the ground when the program end



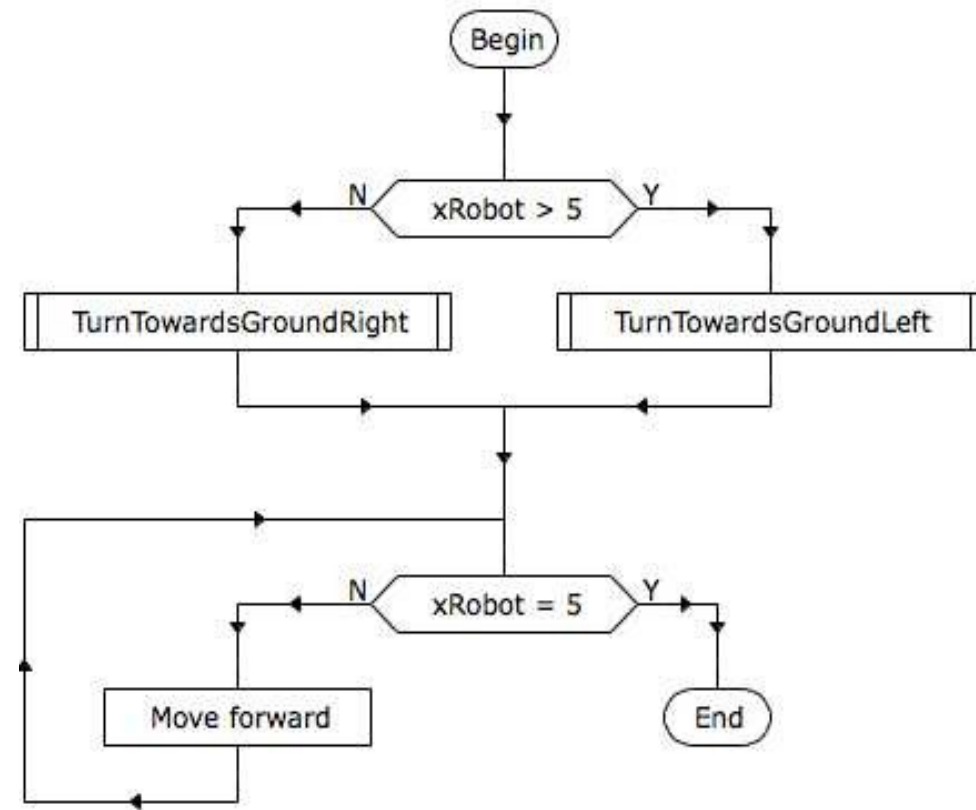
Build and test a new subroutine named  
TurnTowardsGroundRight  
The robot goes to the ground center

\* The ground center is at the intersection  
of the central column and the central  
row (see the ground).

In order that the robot goes to the ground  
center, it has to go to a tile in central  
column, then to a tile in central row. To  
achieve that purpose, we need two  
subroutines.

\* GoToCentralColumn subroutine :

- Create a new subroutine with the name  
GoToCentralColumn
- Build following flowchart :

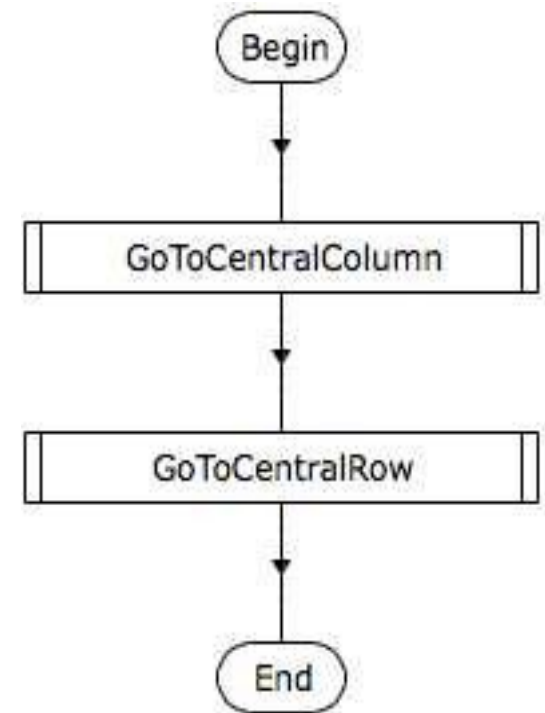




\* GoToCentralRow subroutine :

This subroutine method is similar to the previous one, except we have to test the robot y position, and we move it towards front or rear of the ground.

- Build new subroutines named TurnTowardsGroundRear and TurnTowardsGroundFront.
- Build new subroutine named GoToCentralRow
- Build the main program :



Lengkapi flowchart Robot diatas!