' PicBasic Pro program to perform the control functions of the security system presented in Section 6.6

' Define variables for I/O port pins
door_or_window   Var PORTB.0  ' signal A
motion           Var PORTB.1  ' signal B
c               Var PORTB.2   ' signal C
d               Var PORTB.3   ' signal D
alarm           Var PORTA.0    ' signal Y

' Define constants for use in IF comparisons
OPEN           Con  1      ' to indicate that a door OR window is open
DETECTED       Con  1      ' to indicate that motion is detected

' Make sure the alarm is off to begin with
Low alarm

' Main polling loop
always:
    If ((c == 0) And (d == 1)) Then    ' operating state 1 (occupants sleeping)
        If (door_or_window == OPEN) Then
            High alarm
        Else
            Low alarm
        Endif
    Else
        If ((c == 1) And (d == 0)) Then    ' operating state 2 (occupants away)
            If((door_or_window == OPEN) Or (motion == DETECTED)) Then
                High alarm
            Else
                Low alarm
            Endif
        Else    ' operating state 3 or NA (alarm disabled)
            Low alarm
        Endif
    Endif
Endif
Goto always     ' continue to poll the inputs
End