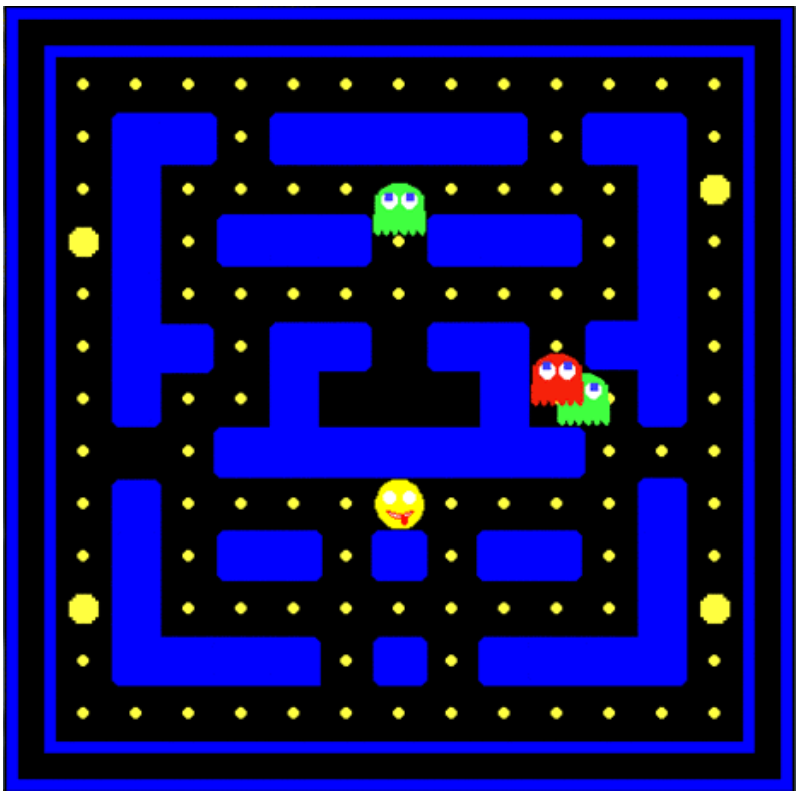
Programming for Pacman

PLEASE NOTE: This lesson contains many lines of instructions. It's very important to go slow and make sure you complete each line of programming before moving on to the next step.

Also – SAVE OFTEN!!! Save as Game6

Step 1: Creating the Game's Sprites



1. Create **spr_pac_left** (using the sprite you created). Check Separate collision masks. **Uncheck Precise Collision.**

2. Create a sprite named **spr_pac_right** (using the sprite you created). Check Separate collision masks. **Uncheck Precise Collision.**

3. Create a sprite named **spr_pac_up** (using the sprite you created). Check Separate collision masks. **Uncheck Precise Collision.**

4. Create a sprite named **spr_pac_down** (using the sprite you created). Check Separate collision masks. **Uncheck Precise Collision.**

5. Create a sprite named **spr_pac_stand** (using the sprite you created). Check Separate collision masks. **Uncheck Precise Collision.**

6. Create a sprite named **spr_ghost**, assign it ghost_strip4 found in the Resources folder. Check both Precise and Separate.

7. Create a sprite named **spr_afraid**, assign it afraid_strip4 found in the Resources folder. Check both Precise and Separate.

8. Create a sprite named **spr_point**, assign it point_sprite found in the Resources folder. Check both Precise and Separate.

9. Create a sprite named **spr_wall**, assign it wall_sprite found in the Resources folder. Check Separate collision masks. **Uncheck Precise Collision.**

10. Create a sprite named **spr_coin_sprite**, assign it coin_sprite found in the Resources folder. Check both Precise and Separate.

Step 2: Add the Game's Sounds
All the audio files are located with the Resources for the Pacman game.

11. Create a new sound named **snd_beep** and assign it the beep.wav file.

12. Create a new sound named **snd_dead** and assign it the dead.wav file.

13. Create a new sound name **snd_won** and assign it the won.wav file

14. Create a new sound name **snd_click** and assign it the click.wav file

15. Create a new sound name **snd_catch** and assign it the catch.wav file

Step 3: Create the Background Tiles

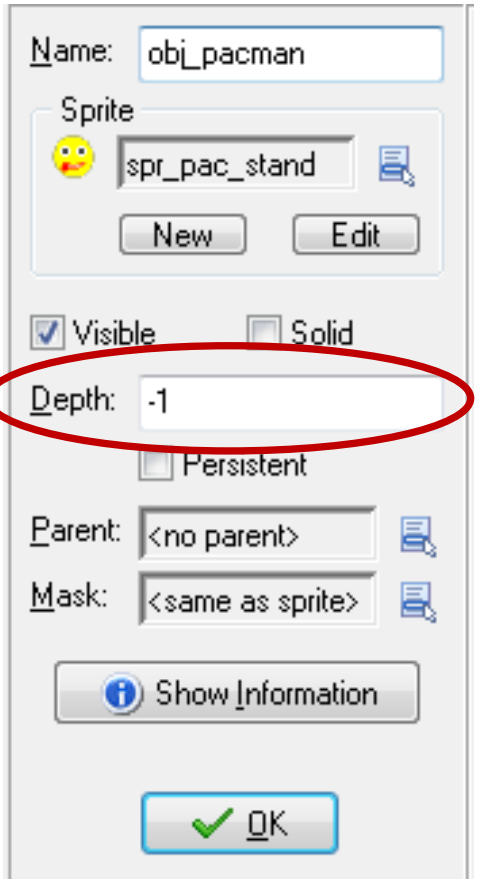
16. Click on Resources > Create Background. Create a new background called **bckgd_level1**, assign it the level1.png graphic file.

17. Create a new background called **bckgd_level2**, assign it the level2.png graphic file.

18. Create a new background called **bckgd_level3**, assign it the level3.png graphic file.

19. Create a new background called **bckgd_level4**, assign it the level4.png graphic file.

Step 4: Creating the Game's Objects



20. Add a new object named **obj_pacman** and assign it the spr_pac_stand sprite. Check the visible box - leave solid unchecked. Enter **-1** in the Depth box.

> FYI - The default value for an object's depth is 0, unless you set it to a different value in the object properties. The higher the value the further the instance is away. (You can also use negative values.) Instances with higher depth will lie **behind** instances with a lower depth. Setting the depth will guarantee that the instances are displayed in the order you want (e.g. the plane in front of the cloud). Background instances should have a high (positive) depth, and foreground instances should have a low (negative) depth. In this case, we are setting the object of Pacman to be in the foreground – in front of the points and coins.

21. Add a new object named **obj_ghost**, assigning it the spr_ghost sprite. Check the visible box - leave solid unchecked. Enter **-2** in the depth box.

> FYI - Entering a Depth of -2 will make the ghosts appear to be in front of Pacman, so it looks like the ghosts "attacked" him.

22. Add a new object named **obj_afraid**, assigning it the spr_afraid sprite. Check the visible box - leave solid unchecked. Enter 0 in the depth box.

> FYI - This will make it appear that Pacman "ate" the scared ghosts, because the scared ghosts will be behind Pacman.

In the Parent field, select obj_ghost from the drop down. This will enable obj_afraid to take on the same programming as obj_ghost without having to repeat the same programming for this object.

23. Add a new object named **obj_wall**, assigning it the spr_wall sprite. Do NOT check visible. Check the solid box. Enter 0 in the depth box.

> **Why wouldn't the wall be visible?** Because we want to see the backgrounds behind the wall, but need the wall to serve as the object that the other objects collide against.

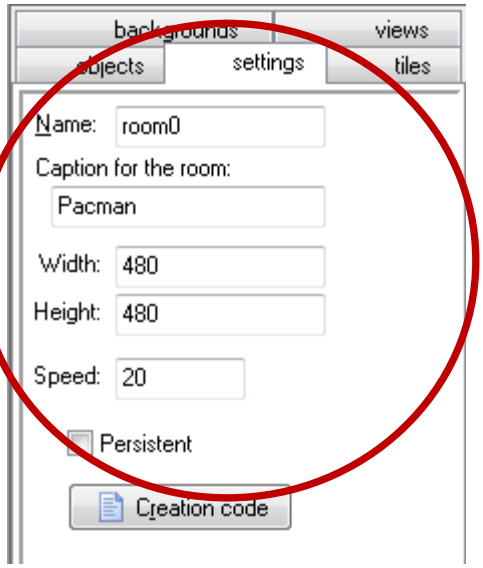
24. Add a new object named **obj_point**, assigning it the spr_point sprite. Check the visible box - leave solid unchecked. Enter 0 in the depth box.

25. Add a new object named **obj_coin**, assigning it the spr_coin sprite. Check the visible box - leave solid unchecked. Enter 0 in the depth box.

Step 5: Creating Rooms

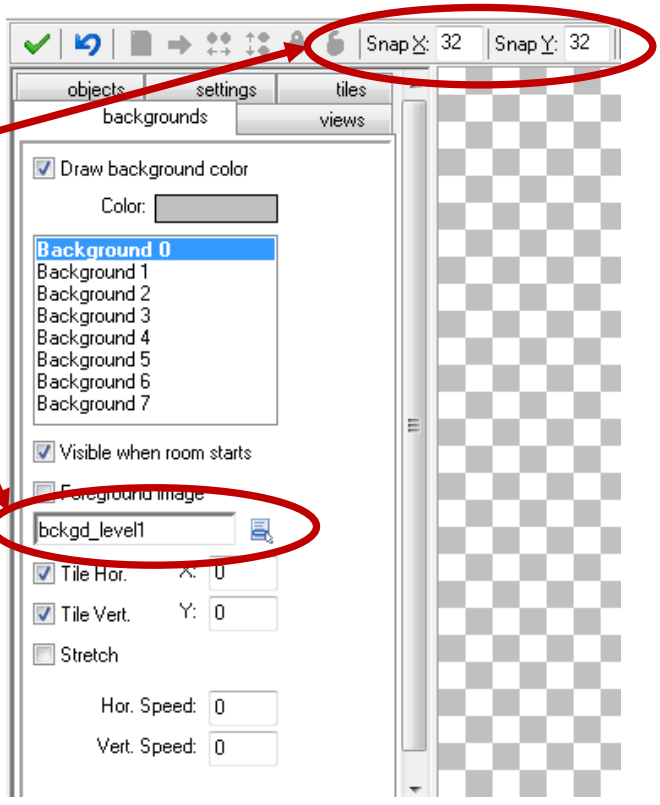
26. Click on Create a room button.
Under the **settings** folder tab, name the room **room0**.
Enter Pacman as the Caption for the room (you will see later where this displays).
Set the width and height at 480.
Set the room speed at 20.

> FYI – Speed is the # of steps per second.

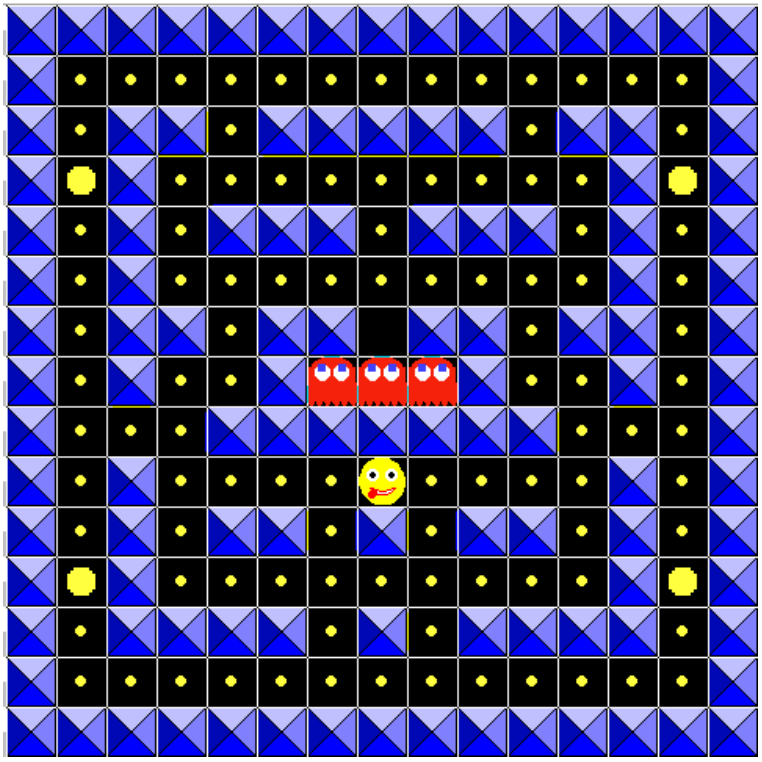


Under the backgrounds tab, select **bckgd_level1** as your image.

Change the Snap X and Snap Y to 32 each.



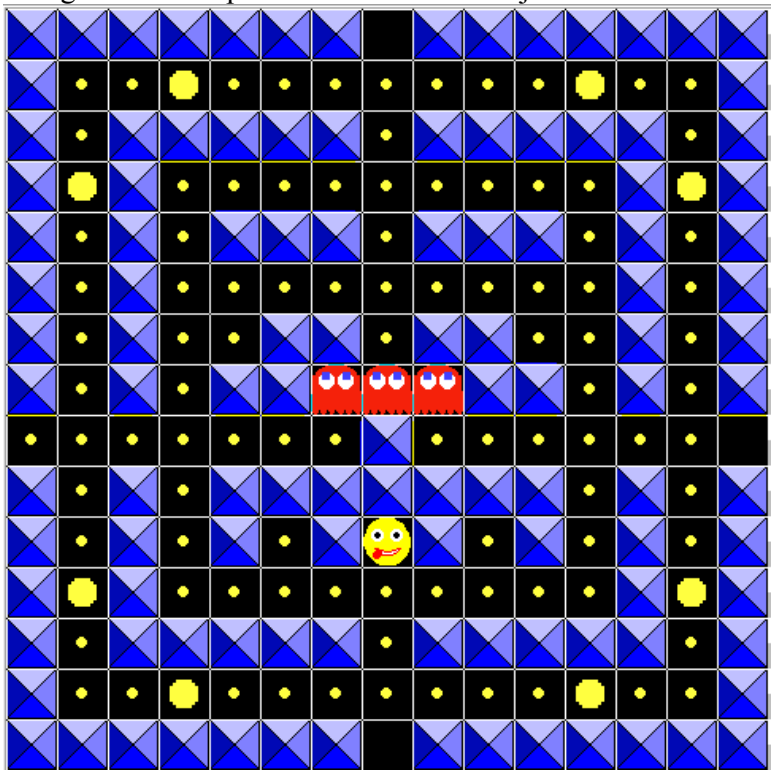
Add the objects to the room so it looks like the following and click the green √ to save:



(room0)

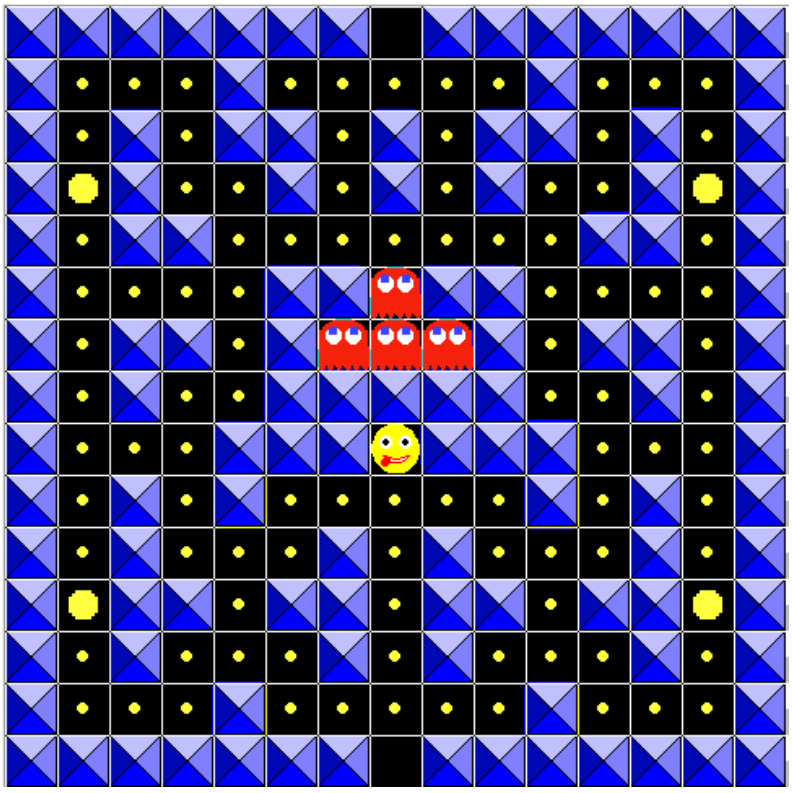
FYI - The wall object is placed over the blue areas (Remember, the wall object is not visible—the blue will appear to be the playing field).

27. Following the same steps as listed above, create **room1**, using bckgd_level2 as the background image and change the room speed to 25. Add the objects to the room so it looks like the following:



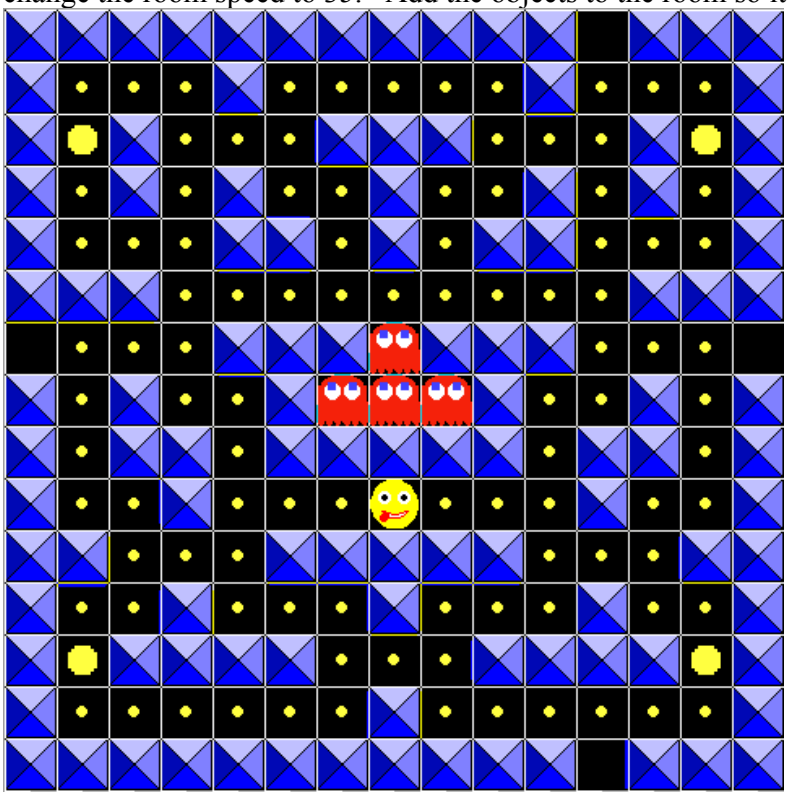
(room1)

28. Following the same steps as listed above, create **room2**, using bckgd_level3 as the background image and change the room speed to 30. Add the objects to the room so it looks like the following:



(room2)

29. Following the same steps as listed above, create **room3**, using bckgd_level4 as the background image and change the room speed to 35. Add the objects to the room so it looks like the following:



(room3)

Step 6: Programming the Objects

Obj_pacman (13 Events)

Event 1: Create

Action: Change Sprite
Applies to: Self
Sprite: spr_pac_stand
Subimage: 0
Speed: 0.5

Event 2: Step

Action: Test Instance Count
Object: obj_point
Number: 0
Operation: Equal to

Action: Start Block

Action: Play Sound
Sound: sound_won
Loop: False

Action: Sleep
Milliseconds: 2000
Redraw: true

Action: Check Next

Action: Next Room
Transition: no effect

Action: Else

Action: Start Block

Action: Show Highscore
Background: No Background
Border: Show
New color: select a font color for the new score to display
Other color: Select a font color for the other high scores to display
Font: Select a font

Action: End Game

Action: End Block

Action: End Block

QUESTION: Why do you need 2 End Blocks?
ANSWER: Every start block needs a corresponding End Block.

Event 3: Collision Event with obj_ghost

Action: Play sound
Sound: snd_dead
Loop: False

Action: Sleep
Milliseconds: 1500
Redraw: true

Action: Jump to Start
Applies to: Object > obj_ghost

Action: Jump to Start
Applies to: Object > obj_afraid

Action: Move Fixed
Applies to: Self
Directions: Select middle button (to stop movement)
Speed: 0
Relative is NOT checked

Action: Change Sprite
Applies to: Self
Sprite: spr_pac_stand
Subimage: 0
Speed: 0.5

Action: Jump to Start
Applies to: Self

Action: Set Lives
New lives: -1
Relative IS checked

Event 4: Collision Event with obj_afraid

Action: Play sound
Sound: snd_catch
Loop: False

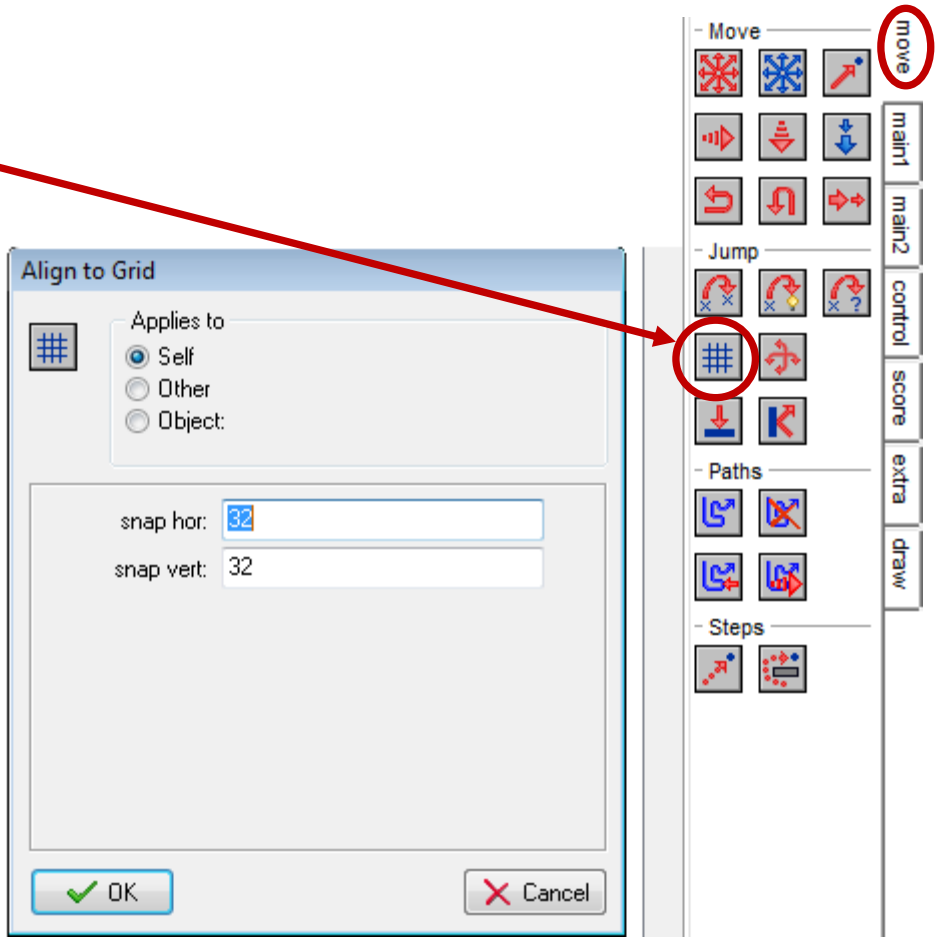
Action: Jump to Start
Applies to: Other

Action: Change Instance
Applies to: obj_ghost
Perform Events: Not

Action: Set Score
New Score: 100
Relative IS checked

Event 5: Collision with obj_wall

Action: Align to Grid
Applies to: Self
Snap Hor: 32
Snap Vert: 32



Action: Move Fixed
Applies to: Self
Directions: Center button
(to stop movement)
Speed: 0
Relative is NOT checked

Action: Change Sprite
Applies to: Self
Sprite: spr_pac_stand
Subimage: 0
Speed: 0.5

Event 6: Collision with obj_point

Action: Destroy Instance
Applies to: Other

Action: Play Sound
Sound: snd_click
Loop: False

Action: Set Score
New Score: 10
Relative IS checked

Event 7: Collision with obj_coin

Action: Play Sound
Sound: snd_beep
Loop: False

Action: Destroy Instance
Applies to: Other

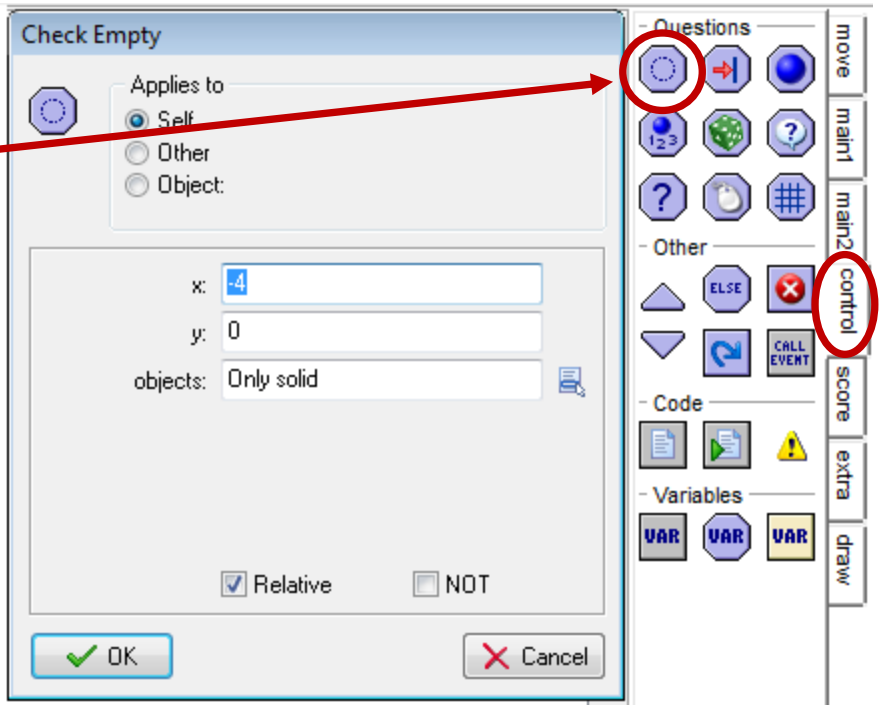
Action: Change Instance
Applies to: Object > obj_afraid
Change into: obj_ghost
Perform Events: not

Action: Change Instance
Applies to: Object > obj_ghost
Change into: obj_afraid
Perform Events: not

Action: Set Alarm
Applies to: Other > obj_afraid
Number of steps: 160
In Alarm no: Alarm 0

Event 8: Keyboard <Left>

Action: Check Empty
Applies to: Self
x: -4
y: 0
Objects: Only Solid
Relative IS checked



Action: Start Block

Action: Check Grid
Applies to: Self
Snap Hor: 32
Snap Vert: 32

Action: Start Block

Action: Moved Fixed
Applies to: Self
Direction: Left Arrow
Speed: 4
Relative is NOT checked

Action: Change Sprite
Applies to: Self
Sprite: spr_pac_left
Subimage: -1
Speed: 0.5

Action: End Block

Action: End Block

Event 9: Keyboard <Right>

Action: Check Empty
Applies to: Self
x: 4
y: 0
Objects: Only Solid
Relative IS checked

Action: Start Block

Action: Check Grid
Applies to: Self
Snap Hor: 32
Snap Vert: 32

Action: Start Block

Action: Moved Fixed
Applies to: Self
Direction: Right Arrow
Speed: 4
Relative is NOT checked

Action: Change Sprite
Applies to: Self
Sprite: spr_pac_right
Subimage: -1
Speed: 0.5

Action: End Block

Action: End Block

Event 9: Keyboard <Up>

Action: Check Empty
Applies to: Self
x: 0
y: -4
Objects: Only Solid
Relative IS checked

Action: Start Block

Action: Check Grid
Applies to: Self
Snap Hor: 32
Snap Vert: 32

Action: Start Block

Action: Moved Fixed
Applies to: Self
Direction: Up Arrow
Speed: 4
Relative is NOT checked

Action: Change Sprite
Applies to: Self
Sprite: spr_pac_up
Subimage: -1
Speed: 0.5

Action: End Block

Action: End Block

Event 10: Keyboard <Down>

Action: Check Empty
Applies to: Self
x: 0
y: 4
Objects: Only Solid
Relative IS checked

Action: Start Block

Action: Check Grid
Applies to: Self
Snap Hor: 32
Snap Vert: 32

Action: Start Block

Action: Moved Fixed
Applies to: Self
Direction: Down Arrow
Speed: 4
Relative is NOT checked

Action: Change Sprite
Applies to: Self
Sprite: spr_pac_down
Subimage: -1
Speed: 0.5

Action: End Block

Action: End Block

Event 11: Other > Outside Room

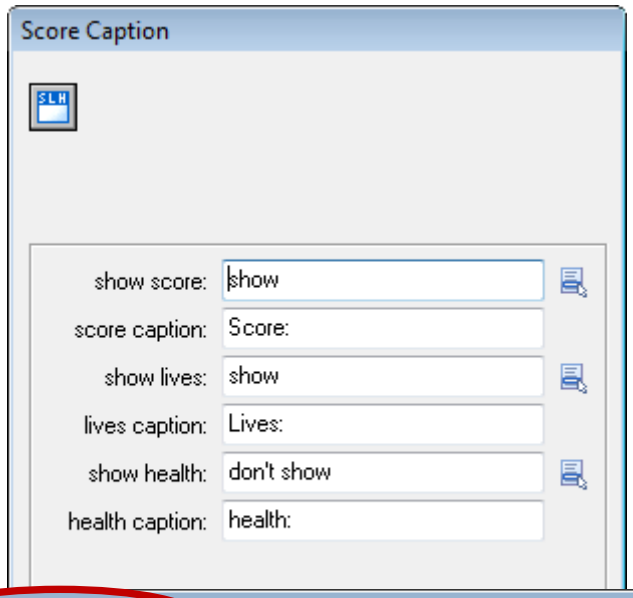
Action: Wrap Screen
Applies to: Self
Direction: in both directions

Event 12: Other > Game Start

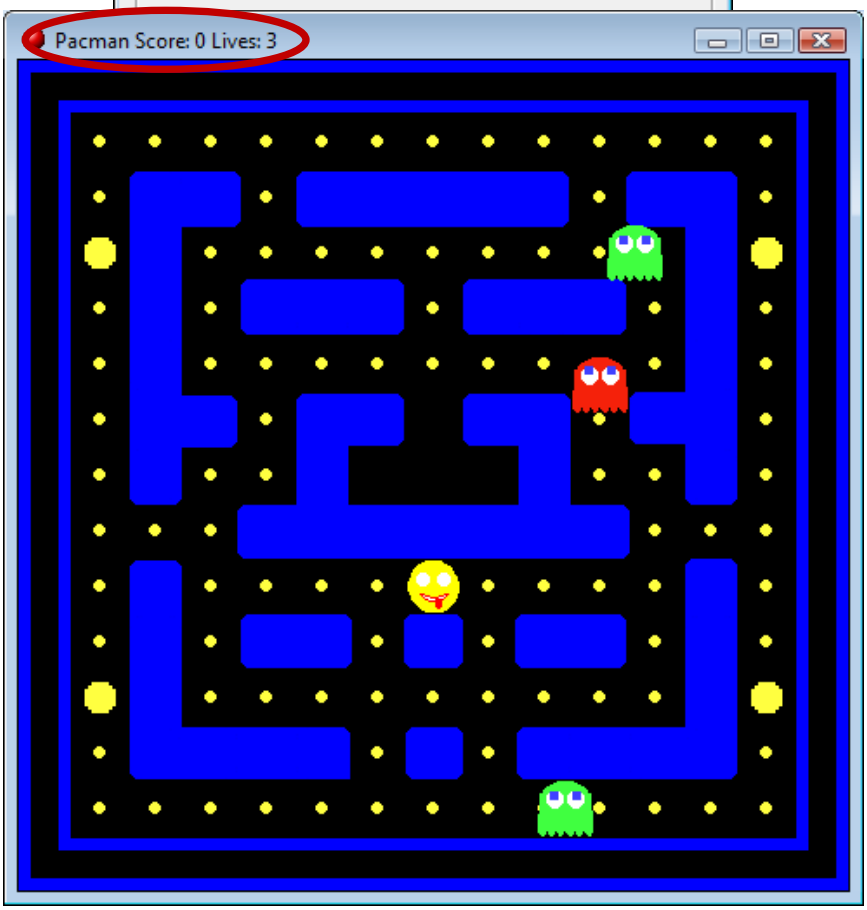
Action: Set Lives
New Lives: 3
Relative is NOT checked

Action: Set Score
New Score: 0
Relative is NOT checked

Action: Score Caption
Show Score: show
Score Caption: Score: (add a space)
Show Lives: show
Lives Caption: Lives: (add a space)
Show Health: don't show
Health Caption:



FYI – Remember when you entered Pacman as the Caption for the Room in the Room Settings? Here is an example of how that displays (along with the Score, Lives and Health captions, if those are selected to show).



What you enter for the Score, Lives and Health Captions display exactly as typed. You need to add a space so the values don't butt right up against the caption.

Event 13: Other > No More Lives

Action: Show High Score
Background: No Background
Border: Show
New color: select a font color for the new score to display
Other color: Select a font color for the other high scores to display
Font: Select a font

Action: End Game

Obj_ghost (4 Events)

Event 1: Create

Action: Change Sprite
Applies to: Self
Sprite: spr_ghost
Subimage: random(4)
Speed: 0

Action: Moved Fixed
Applies to: Self
Directions: select Up, Down, Left and Right arrows
Speed: 4
Relative is NOT checked

Event 2: Step

Action: Check Grid
Applies to: Self
Snap hor: 32
Snap vert: 32

Action: Start Block

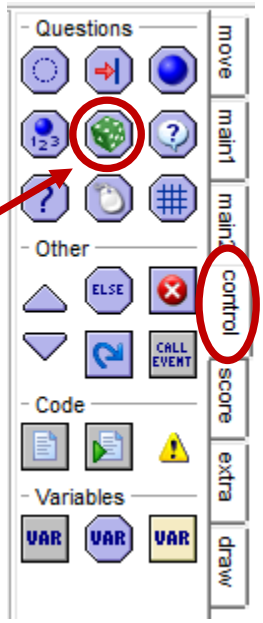
Action: Test Expression
Applies to: Self
Expression: hspeed=0

Action: Start Block

Action: Check Empty
Applies to: Self
x: -4
y: 0
Objects: only solids
Relative IS checked

Action: Start Block

Action: Test Chance
Sides: 2



Action: Move Fixed
Applies to: Self
Directions: select Left Arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: Check Empty

Applies to: Self
x: 4
y: 0
Objects: only solids
Relative IS checked

Action: Start Block

Action: Test Chance
Sides: 2

Action: Move Fixed
Applies to: Self
Direction: Select right arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: End Block

Action: Else

Action: Start Block

Action: Action: Check Empty
Applies to: Self
x: 0
y: -4
Objects: only solids
Relative IS checked

Action: Start Block

Action: Test Chance
Sides: 2

Action: Move Fixed
Applies to: Self
Direction: Select up arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: Start Block

Action: Action: Check Empty
Applies to: Self
x: 0
y: 4
Objects: only solids
Relative IS checked

Action: Start Block

Action: Test Chance
Sides: 2

Action: Move Fixed
Applies to: Self
Direction: Select down arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: End Block

Action: End Block

Event 3: Collision with obj_wall

Action: Align to Grid
Applies to: Self
Snap hor: 32
Snap vert: 32

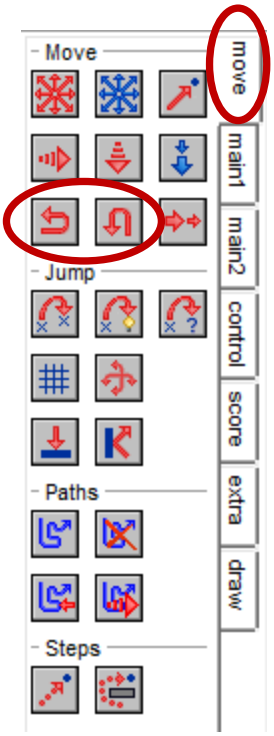
Action: Reverse Horizontal
Applies to: Self

Action: Reverse Vertical
Applies to: Self

Action: Test Expression
Applies to: Self
Expression: hspeed=0

Action: Start Block

Action: Check Empty
Applies to: Self
x: -4
y: 0
Objects: only solids
Relative IS checked



Action: Start Block

Action: Test Chance
Sides: 2

Action: Move Fixed
Applies to: Self
Directions: select Left Arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: Check Empty
Applies to: Self
x: 4
y: 0
Objects: only solids
Relative IS checked

Action: Start Block

Action: Test Chance
Sides: 2

Action: Move Fixed
Applies to: Self
Direction: Select right arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: End Block

Action: Else

Action: Start Block

Action: Action: Check Empty
Applies to: Self
x: 0
y: -4
Objects: only solids
Relative IS checked

Action: Start Block

Action: Test Chance
Sides: 2

Action: Move Fixed
Applies to: Self
Direction: Select up arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: Action: Check Empty
Applies to: Self
x: 0
y: 4
Objects: only solids
Relative IS checked

Action: Start Block

Action: Test Chance
Sides: 2

Action: Move Fixed
Applies to: Self
Direction: Select down arrow
Speed: 4
Relative is NOT checked

Action: End Block

Action: End Block

Event 4: Other > Outside of Room

Action: Wrap Screen
Applies to: Self
Direction: in both directions

Obj_afraid (1 Event)

Event 1: Alarm > Alarm 0

Action: Change Instance
Applies to: Self
Change into: obj_ghost
Perform events: not

Obj_wall

No programming required

Obj_point

No programming required

Obj_coin

No programming required

S**AVE AS GAME6 and test for errors. Debug if necessary.**

ASSIGNMENT:

For all of **Step 6: Programming the Objects**, explain section by section what is being programmed.
Hint: Use HELP if you are unsure.