Game Concept: Pacman is the character in red circle. Other moving objects are four monsters and a bonus item. The game is cleared when Pacman eats all the points. Bonus points are awarded when Pacman eats the bonus item. If Pacman eats one of the four pils located around each corner of the game map, all monsters become scared (thus edible); if they are eaten by Pacman, bonus points are awarded.

Please check the script called pacmanAI_control. (The green part in the script is the comment-out area.)

Rules of RTPacmanAI:
While vertically moving (hspeed == 0),
if not facing wall when moves left then move left with a prob of 0.25
if not facing wall when moves right then move right with a prob of 0.25
otherwise
if not facing wall when moves up then move up with a prob of 0.25
if not facing wall when moves down then move down with a prob of 0.25

If Pacman cannot move (hspeed == 0 && vspeed == 0), perform the following steps from top to bottom:
if not facing wall when moves left then move left with a prob of 0.25
if not facing wall when moves right then move right with a prob of 0.25
if not facing wall when moves up then move up with a prob of 0.25
if not facing wall when moves down then move down with a prob of 0.25

Major objects:
monster_parent (the parent of all monsters, used when there is no need to distinguish monsters of special colors, e.g., when to find the distance to the nearest monster)
monster_blue (child of monster_parent)
monster_orange (child of monster_parent)
monster_green (child of monster_parent)
monster_red (child of monster_parent)
scared_blue (child of monster_blue)
scared_orange (child of monster_orange)
scared_green (child of monster_green)
scared_red (child of monster_red)
point
pil
bonus
Note: An instance is a copy of an object. A child inherits all properties from its parent.

Major System Variables:
x : the x coordinate of the current instance (Pacman)
y : the y coordinate of the current instance (Pacman)
hspeed : the horizontal speed (plus for right, minus for left)
vspeed : the vertical spped (plus for down, minus for up)
Note that the origin (0, 0) is at the top left of the game map. The size of each object is 32x32 pixels and the map size is 480x480 pixels.

Major Standard Game-Maker Functions:
place_free(x, y): Returns whether the instance placed at position(x, y) is collision-free. This is typically used as a check before actually moving to the new position.
random(x) : Returns a random real number between 0 and x. The number is always

smaller than x.
distance_to_object(obj): Returns the distance of the instance to the nearest instance of object obj.
instance_exists(obj): Returns whether an instance of type obj exists. obj can be an object, an instance id, or the keyword all.

Some other important functions implemented in another script:
move_pacman('left') : Move left
move_pacman('right') : Move right
move_pacman('up') : Move up
move_pacman('down') : Move down
Please note that under some circumstance when multiple move functions are performed, the last direction is the one that Pacman moves.

Another Variable:
agent_speed : Returns the speed of the instance (Pacman).

Other Notes:
1, For other objects, please check "Objects" in the left panel of Game Maker's interface.
2. The function Motion Planning in p. 134 of Designing Games with Game Maker v7.0 does not work properly.
3. For more information on the Game Maker Language, please see from p. 108 in Designing Games with Game Maker v7.0.
4. For other information on system variables or standard functions, please check Designing Games with Game Maker v7.0 or click the icon "?" on the top right of the interface of Game Maker.

EOF
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