**Functional**

**Input**

*FN-IN-01: The system should support the use of the W A S and D keys to turn Paku Paku.*

*FN-IN-02: The system should support the use of the arrow keys to turn Paku Paku.*

*FN-IN-03: The system should support the use of the 2 4 6 and 8 keys on the numpad to turn Paku Paku.*

*FN-IN-04: The system should support the use of a joystick to turn Paku Paku.*

*FN-IN-05: The system should allow the user to start a new game by pressing the enter key on the main menu screen.*

*FN-IN-06: The system should allow the user to exit the game by pressing the escape key on the main menu page.*

*FN-IN-07: The system should allow the user to enter their initials upon achieving a high score.*

**Output**

*FN-OUT-01: The system should redraw Paku Paku’s sprite in the direction that the user last entered.*

*FN-OUT-02: The system should display the ghosts facing the direction that they are currently moving.*

*FN-OUT-03: The system should display the high scores in the high score table upon the menu being shown.*

*FN-OUT-04: The system should display the initials corresponding to each high score upon the menu being shown.*

*FN-OUT-05: The system should play a death animation when Paku Paku collides with a non-consumable ghost.*

*FN-OUT-06: The system should display “Game Over” and return to the main menu if Paku Paku dies with zero lives.*

*FN-OUT-07: The system should play the level clear animation when all pellets are consumed on the game field.*

*FN-OUT-08: The system should remove a pellet from the grid when Paku Paku collides with it.*

*FN-OUT-09: The system should display the points earned from consuming a consumable ghost or bonus item.*

*FN-OUT-10: The system should play a unique sound upon the consumption of a bonus item or ghost.*

*FN-OUT-11: The system should prompt the user to enter their initials if the user achieves a high score.*

*FN-OUT-12: The system should display bonus collectables in the tile where Paku Paku spawns when they appear.*

*FN-OUT-13: The system should briefly hide all elements on the field and display the points earned when a ghost is consumed.*

*FN-OUT-14: The system should briefly hide all elements on the field and display the points earned when a bonus collectable is consumed.*

*FN-OUT-15: The system should color the ghosts as blue when they are fleeing.*

**System**

*FN-SYS-01: The system should use an internal timer to control movement.*

*FN-SYS-02: The system should automatically speed up the timer upon the completion of a level until level 21 of the game.*

*FN-SYS-03: The system should automatically move the characters in the direction they are facing when the time designated by the level is reached on the timer.*

*FN-SYS-04: The system should allow Paku Paku to turn in any direction when the input is given.*

*FN-SYS-05: The system should not allow Paku Paku to move on or through wall tiles.*

*FN-SYS-06: The system should allow Paku Paku to warp to the opposite side of the map when Paku Paku reaches the end of the tunnel in the center.*

*FN-SYS-07: The system should not allow the ghosts in their normal state to turn the opposite direction that they are currently moving.*

*FN-SYS-08: The system should set the ghosts currently on the stage that are not consumed to fleeing upon Paku Paku consuming a super pellet.*

*FN-SYS-08: The system should reverse the current direction of the ghosts when Paku Paku consumes a super pellet.*

*FN-SYS-09: The system should allow Paku Paku to consume the ghosts for points.*

*FN-SYS-10: The system should calculate the ghost’s points as 200 times the number of ghosts consumed, with a point cap at 6400 per ghost.*

*FN-SYS-11: The system should reset the ghost’s points to 200 upon Paku Paku exiting super mode.*

*FN-SYS-12: The system should remove Paku Paku from super mode upon clearing a level.*

*FN-SYS-13: The system should not make the ghosts in jail consumable when a super pellet is consumed.*

*FN-SYS-14: The system should award 10 points to the user when a regular pellet is consumed.*

*FN-SYS-15: The system should award 100 points to the user when cherries are consumed.*

*FN-SYS-16: The system should award 300 points to the user when a strawberry is consumed.*

*FN-SYS-17: The system should award 500 points to the user when an orange is consumed.*

*FN-SYS-18: The system should award 700 points to the user when a bell is consumed.*

*FN-SYS-19: The system should award 1000 points to the user when an apple is consumed.*

*FN-SYS-20: The system should award 2000 points to the user when a melon is consumed.*

*FN-SYS-21: The system should award 3000 points to the user when a Galaxian is consumed.*

*FN-SYS-22: The system should award 5000 points to the user when a key is consumed.*

*FN-SYS-23: The system should award 50 points to the user when a super pellet is consumed.*

*FN-SYS-24: The system should kill Paku Paku if it collides with a non-consumable ghost.*

*FN-SYS-25: The system should decrement the lives counter when Paku Paku dies.*

*FN-SYS-26: The system should reload the stage and increment the level counter after the level clear animation is complete.*

*FN-SYS-27: The system should play a tune upon the start of the first level, and only the first level.*

*FN-SYS-28: The system should continue a game until the application is closed or Paku Paku dies with 0 lives remaining.*

*FN-SYS-29: The system should only store a total of five high scores.*

*FN-SYS-30: The system should remove the lowest high score when a new high score is entered to store the newest high score.*

*FN-SYS-31: The system should update the ghosts’ movement behavior change times on the first, twelfth, and fifteenth level.*

*FN-SYS-32: The system should have the ghost’s movement pattern performed in the default order of scatter then chase, repeating when the timer on chase ends.*

*FN-SYS-33:* *The system should have Stinky move towards the top right corner when first scattering.*

*FN-SYS-34: The system should have Kinky move towards the top left corner when first scattering.*

*FN-SYS-35: The system should have Hinky move towards the bottom right corner when first scattering.*

*FN-SYS-36: The system should have Blaine move towards the bottom left corner when first scattering.*

*FN-SYS-37: The system should have Stinky move towards Paku Paku’s current location when chasing.*

*FN-SYS-38: The system should have Kinky try to move to the space directly in front of Paku Paku, based on where Paku is facing, when chasing.*

*FN-SYS-39: The system should have Stinky move towards Paku Paku’s location, adjusted depending on what direction Paku is facing, and then using those values and his own divided by two then minus the current location’s coordinates to find his next location when chasing.*

*FN-SYS-40: The system should have Blaine move in the direction of the player like Stinky, but switch his movement style to that of scatter if the square root of the next tile’s x and y values are greater than 7.*

*FN-SYS-41: The system should have the ghosts move directly away from Paku Paku’s location when fleeing.*

*FN-SYS-42: The system should have the ghosts return to their previous movement style once the fleeing mode’s timer ends.*

*FN-SYS-43: The system should have the ghosts move erratically when eaten, with a general goal to enter the top of the jail.*

*FN-SYS-44: The system should set the ghosts exiting the jail to the current movement style.*

*FN-SYS-45: The system should spawn a new bonus collectable after 70 dots are consumed.*

*FN-SYS-46: The system should spawn a new bonus collectable after 170 dots are consumed.*

**Non-Functional**

**Input**

*NF-IN-01: The system should support input from a keyboard connected to the computer.*

**Output**

*NF-OUT-01: The system should output sound using the MIDI sound format.*

*NF-OUT-02: The system should detect if the computer running the system cannot support sound output.*

*NF-OUT-03: The system should produce no sounds if the computer running the system cannot support the sound type.*

*NF-OUT-04: The system should support VGA video output type using the BIOS scanline set.*

*NF-OUT-05: The system should support the EGA video output type.*

**System**

*NF-SYS-01: The system should run with a maximum RAM of 128k*

*NF-SYS-02: The system should run on an Intel 8088 processer that at least runs at 4.77 mhz.*

*NF-SYS-03: The system should run on Windows DOS 2.11 or higher.*