Programmer Manual
Class Turtle

1. Problem Description

The turtle class contains all of the information about the turtle object, such as position, direction, and if the pen is down. The turtle class calls the functions for the other class in order to perform the functionality for the Board class.

2. Class Turtle

The turtle class holds a Position object, a Direction object, and a Pen object. It also keeps track of it's previous x and y positions

Private data members:

pos	a pointer to a Position class
pen	a pointer to a Pen class
direction	a pointer to a Direction class
previousX	the previous X position of the turtle
previousY	the previous Y position of the turtle

Public member functions:

Turtle()	constructor for a Turtle object
~Turtle()	destructor for a Turtle object
getCurrentX	gets the current x position
getCurrentY	gets the current y position
getPreviousX	gets the previous x position
getPreviousY	gets the previous y position
setCurrentX	sets the current x position
setCurrentY	sets the current y position
getDirection	gets the current direction
move	changes the turtle position based on the number of spaces to move
turn	changes the turtle's direction
jump	changes the turtle's x, y position
changeBrush	changes the brush the turtle draws with
changePenPosition	toggles the pen up or down
penDown	checks whether the pen is down or not

3. High Level Program Solution

Turtle()

Allocates memory for a Position object, a Direction object, and a Pen object
Sets the previous x and y positions to 0

getCurrentX()

Call the Position's getPosX function to return the current x position

getCurrentY()

Call the Position's getPosY function to return the current y position

getPreviousX()

Returns the previous x position

getPreviousY()

Returns the previous y position

move()

IN: numSpaces the number of spaces to move

Sets the previous x and y positions to the current x and y positions
Calls the Direction's getDir function to determine which direction to move
Adds or subtracts numSpaces to the current x or y position depending on the current direction and sets that as the new x or y position

turn()

IN: dir the direction to change to

Calls the Direction's changeDir function to change the current direction

jump()

IN: newX the x position to jump to
newY the y position to jump to

Calls the setCurrentX function to set the x position to newX
Calls the setCurrentY function to set the y position to newY

setCurrentX()

IN: newX the x position to set the current x position to

Calls the Position's setPosX function to set the current x position to newX

setCurrentY()

IN: newY the y position to set the current y position to

Calls the Position's setPosY function to set the current y position to newY

changePenPosition()

Calls the Pen's togglePenPosition function to set the pen up or down

penDown()

Calls the Pen's getPenPosition function to return whether the pen is up or down

changeBrush()

IN: brush the number of the brush to select

Calls the Pen's getBrush function to change the brush

getDirection()

Calls the Direction's getDir function to return the current direction