1. Some notable obstacles I overcame were trying to make sure the syntax errors were counted before the out of bounds errors and struggling with matching all of the {} and ().
2. Phase 1: basically just copy what was given, add functions that plot horizontal line and vertical line

If negative distance

break

repeatedly:

call a function to check whether a point is in bounds

if in bounds, set character

increment the row/column number

plot rectangle function

if negative width or height

break

call horizontal and vertical line functions

plot line function

if direction not valid, fgbg not valid, or character not valid

break

if out of bounds

break

repeatedly:

set character if foreground mode or character is space,

increment column or row

check for syntax errors

repeatedly:

if command has no valid argument

break

increment number

get argument function

set argument of the command to string

perform commands

if not valid character or mode

break

call syntax error function

break if syntax error found

repeatedly:

call the function to get argument

execute the commands

if out of bounds

break

1. H1 (horizontal with a one digit argument)  
   H11 (horizontal with a two digit argument)  
   H-1 (horizontal with a negative one digit argument)  
   H-11 (horizontal with a negative two digit argument)  
   H0 (horizontal with a zero argument)  
   H00 (horizontal with a 00 argument)  
   H-20 (horizontal with an out of bounds argument)  
   H (horizontal with no argument)  
   H- (horizontal with just a minus sign)  
   V1 (vertical with a one digit argument)  
   V11 (vertical with a two digit argument)  
   V-1 (vertical with a negative one digit argument)  
   V-11 (vertical with a negative two digit argument)  
   V0 (vertical with a zero argument)  
   V00 (vertical with a 00 argument)  
   V-11 (vertical with an out of bounds argument)  
   V (vertical with no argument)  
   V- (vertical with just a minus sign)  
   h1 (horizontal lowercase with a one digit argument)  
   h11 (horizontal lowercase with a two digit argument)  
   h-1 (horizontal lowercase with a negative one digit argument)  
   h-11 (horizontal lowercase with a negative two digit argument)  
   h0 (horizontal lowercase with a zero argument)  
   h00 (horizontal lowercase with a 00 argument)  
   h-20 (horizontal lowercase with an out of bounds argument)  
   h (horizontal lowercase with no argument)  
   h- (horizontal lowercase with just a minus sign)  
   v1 (vertical lowercase with a one digit argument)  
   v11 (vertical lowercase with a two digit argument)  
   v-1 (vertical lowercase with a negative one digit argument)  
   v-11 (vertical lowercase with a negative two digit argument)  
   v0 (vertical lowercase with a zero argument)  
   v00 (vertical lowercase with a 00 argument)  
   v-11 (vertical lowercase with an out of bounds argument)  
   v (vertical lowercase with no argument)  
   v- (vertical lowercase with just a minus sign)  
   F (foreground with no argument)  
   F\t (foreground with invalid argument)  
   Ft (foreground with valid argument)  
   B (background with no argument)  
   B\t (background with invalid argument)  
   Bt (background with valid argument)  
   f (foreground lowercase with no argument)  
   f\t (foreground lowercase with invalid argument)  
   ft (foreground lowercase with valid argument)  
   b (background lowercase with no argument)  
   b\t (background lowercase with invalid argument)  
   bt (background lowercase with valid argument)  
   C (clear command)  
   c (clear lowercase)  
   Q (invalid starting command)  
   H-13F (syntax error after out of bounds error)