Precipitation

New Mexico
Supercomputing Challenge
Final Report
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Team 13
Centennial High School

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Executive Summary: In all after all this hard work I had some fun will doing learning new things every tim e we met after school this being our very first year doing this I liked it because in the future mostly every thing will be off computers and that's where we're leading to. When we where running our experiments we saw if there was to much water there would be some cows dieing but we couldn't figure out why an d the same if there was a lot more grass then water.

INTRODUCTION:
Problem: Our problem that we wanted to show that the drought was affecting this area especially anima ls and crops.
Purpose: Our purpose was to show what is happening with little to no water.
Background: Average number of a successful rancher is 600 cows or less. We get less than 10 inches of r ain a year.

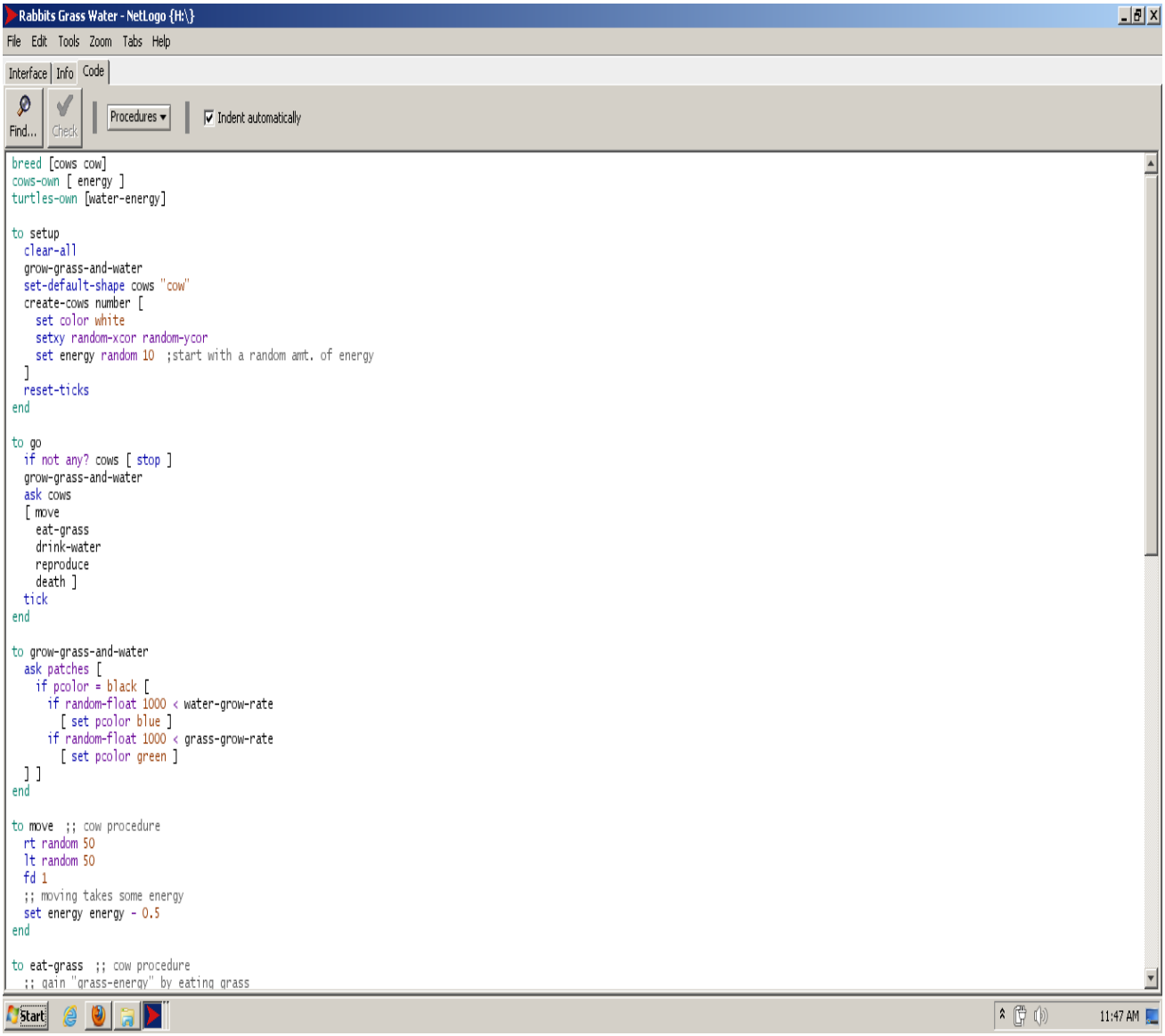
DESCRIPTION:
Scope:
Materials and Methods: We used netlogo to write our code and we based it off a model in the program which was similar but we changed parts of the code so we could have accurate results.
RESULTS: The results we got from our experiments is if there is a lot of water the population flourished f rom 600 to almost 800 cows but it's the opposite if there is little to no water they died of slowly in a few years starting with a group of 600.
CONCLUSIONS: In conclusion we seem to have proved that our original thoughts were right and we wer e satisfied with that for being our first year in the challenge.

RECOMMENDATIONS: What we would have done differently is try and fine tune our code better than w e had originally had.

ACKNOWLEDGEMENTS: I would like to thank my teammate zachary bar elaborate his help and Ms. Haga man for all the help.

REFERENCES: Google, Wikipedia article "drought", Wikipedia article "water"

APPENDIX:


Rabbits Grass Water - NetLogo {H:\}
File Edit Tools Zoom Tabs Help
Interface Info Code
Find...
Check
Procedures
Indent automatically
breed [cows cow]
cows-own [energy]
turtles-own [water-energy]
to setup
clear-all
grow-grass-and-water
set-default-shape cows "cow"
create-cows number [
set color white
setxy random-xcor random-ycor
set energy random 10 ;start with a random amt. of energy
]
reset-ticks
end
to go
if not any? cows [stop]
grow-grass-and-water
ask cows
[move
eat-grass
drink-water
reproduce
death]
tick
end
to grow-grass-and-water
ask patches [
if pcolor = black [
if random-float 1000 < water-grow-rate
[set pcolor blue]
if random-float 1000 < grass-grow-rate
[set pcolor green]
]]
end
to move ;; cow procedure
rt random 50
lt random 50
fd 1
;; moving takes some energy
set energy energy - 0.5
end
to eat-grass ;; cow procedure
;; gain "grass-energy" by eating grass
Start
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