

# *Life in the Fat Lane*

New Mexico  
Supercomputing Challenge  
Final Report  
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Team #66  
Melrose High School

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## **Executive Summary:**

Our project is about the influences and causes of obesity. We asked the question: How do people become obese? Our project tries to answer this question. The StarLogo model uses different influences that real people deal with in our society to show how healthy people become obese.

How do people become obese? What influences cause people to allow themselves to fall into such a life pattern? These are the questions that our team asked. Obesity is a major problem in the United States today, millions of people are chronically obese and we endeavored to understand why. R4

After extensive research we came to understand that certain influences cause people to slowly slip into a life pattern that causes most of them to become obese, raising their Body Mass Index (BMI) and sending some of them into depression. Though our project does not provide a precise answer as to how obesity can be cured, we have found ways to maybe help and perhaps prevent people from becoming obese.

## **Problem:**

In our project there are many influences that can cause obesity. For example: one of the turtles would come upon a Mc'Donalds icon and it would urge it to eat unhealthy fast foods which in the future could cause obesity. The items used in our model are factors of the world that people must deal with everyday. Influences surround almost every community causing obesity to be common among us today.

## **Software:**

The types of software that we used were StarLogo for our model because it seemed like it would be the best program for the project we were doing. It is an introductory computer-modeling program that is easy to obtain and use. Microsoft Power Point was used for our mid term evaluation because it uses tools that are perfect for large presentations, and Microsoft Word for all our reports because it was the best word type program available to us.

## **Method:**

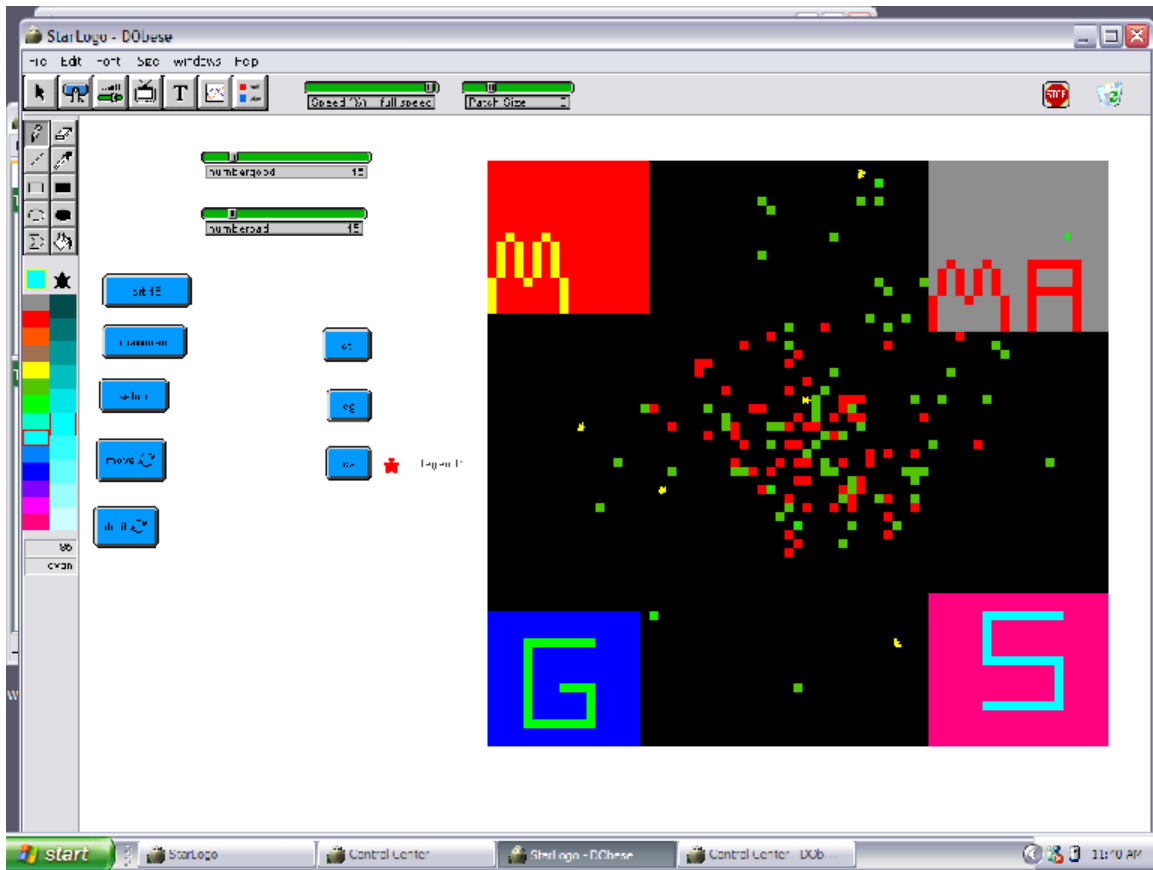
We used Starlogo for our computer model. Our model showed the correlation between influences and attitude and how this affects obesity. Our model is a map of a town with people walking around town. We have several buildings on the map. The buildings are places like restaurants, health food stores, gyms, malls, and schools. We used these as major sources of influence for the turtles. Places like restaurants and malls had bad influence while health food stores and gyms were good influence.

We have 30 turtles that have a counter on them telling us what their current attitude is. The counters run by thirds, 0-33 is very bad attitude, 33-66 is medium attitude, and 66-100 is very good attitude. Ten of the turtles have a very good attitude and are the color green, ten others have a medium attitude and are yellow, and the last ten have a very bad and depressed attitude and are colored red. Small squares will be placed randomly on the map by the turtles. They are small areas of influence and will have a small affect on the turtle's attitude while the buildings will have a large affect.

The turtles will move randomly about the map picking up large and small influences, which change their attitude and their color. As their attitude gets lower or higher they will start going to different places more often. If their attitude is happy they'll go to the gym, or if they're sad they'll start going to restaurants more often.

As their attitude changes for the worse their chances of being obese will increase. This is the correlation that we're trying to model.

**An example screen shot from our model is as follows:**



**A sample of our code is as follows:**

```
breeds [skinny neutral fat]
```

```
turtles-own [esteem]
```

```
to eatpie
```

```
if who = 0 [die]
```

```
if who = 1 [setbreed skinny setshape toothpick setc green fd 4]
```

```
if who = 2 [setbreed skinny setshape toothpick setc green fd 4]
```

```
if who = 3 [setbreed skinny setc green setshape toothpick fd 4]
```

```
if who = 4 [setbreed skinny setc green setshape toothpick fd 4]
```

```

if who = 5 [setbreed skinny setc green setshape toothpick fd 4]

if who = 6 [setbreed neutral setc 45 fd 3]

if who = 7 [setbreed neutral setc 45 fd 3]

if who = 8 [setbreed neutral setc 45 fd 3]

if who = 9 [setbreed neutral setc 45 fd 3]

if who = 10 [setbreed neutral setc 45 fd 3]

if who = 11 [setbreed fat setc red setshape fatty fd 2]

if who = 12 [setbreed fat setc red setshape fatty fd 2]

if who = 13 [setbreed fat setc red setshape fatty fd 2]

if who = 14 [setbreed fat setc red setshape fatty fd 2]

if who = 15 [setbreed fat setc red setshape fatty fd 2]

end

to wearhats

if breed = skinny [repeat numbergood[rt random 270 + 5 fd random 10 + 5 stamp green]]

if breed = neutral [repeat 10 [rt random 170 + 15 fd random 9 + 4]]

if breed = fat [repeat numberbad [lt 270 + 5 fd random 10 + 4 stamp red]]

end

```

## **Results and Conclusions:**

Our model works with the turtles making them move and think like people who are tempted by advertisements and other things that may cause obesity. Changes can be made to help people who are obese such as diets, avoiding advertisements, and exercise. Ads for foods and magazines filled with images of models and articles of how all people should look a certain way may be a major reason why obesity keeps growing and growing. Our results show that if a human sees an ad, then its self-esteem would be lowered and it would be influenced to go eat. If it sees a gym it might be encouraged to go exercise.

In conclusion to our results we have come to believe that if people would eat better and not be tempted by the advertisements and others factors then they could perhaps steer clear of obesity and stay out of the fat lane.

## **Original Contribution:**

Our project uses a different environment and different influences then many computer models we are used to seeing. We have tried our best to model real life and we think that the way we are doing this is original. We are not simply running a program to prove a point. The program is about understanding and trying to help people. We think that this project tends to stand out and it is very original.

## **References:**

These are a few of the references we used to gather information about our topic:

- [www.wikipidea.com](http://www.wikipidea.com)
- [www.ask.com](http://www.ask.com)
- [www.nutritiondata.com](http://www.nutritiondata.com)
- [www.healthgoods.com/Education/Nutrition\\_Information/Weight\\_Control/overweight\\_obesity\\_facts.htm](http://www.healthgoods.com/Education/Nutrition_Information/Weight_Control/overweight_obesity_facts.htm)
- [www.obesityinamerica.org/](http://www.obesityinamerica.org/)
- [www.cdc.gov/overweight/](http://www.cdc.gov/overweight/)

## **Acknowledgement:**

We would like to acknowledge Mr. Alan Daugherty and Mrs. Rebecca Raulie for all of their guidance and support throughout the year. They have made our supercomputing experience memorable and have taught us how to think and try to solve problems that happen around the world each day. We thank the both of them.

