

Design

Zoo Game

Menu

Do while loop asking user to input whether they would like to start the game or not.

Print out the stats of animal. How many babies does it produce, how much does it cost, what age does it become an adult, food costs, and payoff costs

Do while loop asking player to buy 1 or 2 animals of each kind.

Initiate each dynamic array with the size of 10

For loop to initialize each space to be -1 indicating no animals.

Place the animals that were taken from the do while loop into the beginning of the function using for loops.

Calculate and deduct costs of the animals bought from the bank.

Do while loop to initiate the loop of the official game.

Check age of Tiger to get number of adults and babies

Check age of Penguins to get number of adults and babies

Check age of turtles to get number of adults and babies

Use for loop to increase integers that are greater than -1 by 1

Calculate and deduct food costs depending on number of animals and their appropriate food costs

Roll a random number

If random number 1 initiate sickness function

If random number 2 initiate tiger extra money function

If random number 3 initiate baby boom

Check = sizeofarray - numberofanimals

If tiger == 0 need to resize

If penguin is <= 5 need to resize

If turtle is <= 10 need to resize

Give player money based on how many animals they possess

Recalculate if player needs to resize array

newTigerSize = tigerSize * 2

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int * newTigers = new int[newTigerSize]
for (count = 0; count < newTigerSize; count++)
    newtigers[count] = -1
for (count = 0; count < tigerSize; count++)
    newtigers[count] = tigers
delete [] tigers
tigerSize = newTigerSize
tigers = newtigers
```

Test Table

Buy Animals	Event baby boom	Event sickness	Event money	Array status	Number of animals	Bank	What is supposed to happen	What happened	What I changed
T - 1 P - 1 Tu - 1	Turtle			Broke	11		The array was supposed to double then add the turtles to the array at 0	There were wonky numbers in the array that ranged from 49 to 0	I split up the event function into 3 forms and the resizing into separate functions
T - 2 P - 2 Tu - 2	Turtle			Broke	11		The array was supposed to double again	It gave a core dump	Fixed my resizing function to appropriately change the array using a new array and copying the contents of the old array then deleting the old array
T - 1 P - 1 Tu - 22			Tiger	Good	2	100000	Bank was supposed to change based on number of animals bought and the food made was supposed to be placed within the bank	Bank did not change.	Used a reference to the bank to the appropriate functions in order to actively change the bank value throughout the program
T - 0 P - 0 Tu - 0		Penguin		Good	0	100000	The program prints out that everything is dead	Nothing happened. The game did not print out the status	Fixed the logic within the death function so that if there is no animals it will say that all the animals are not there.
T - 21 P - 28/no adults Tu - 37	Penguin			Good	28		Program is to skip the penguins and go to the turtles to check if there are adults	Program did nothing and nothing was born nor anything changed	Made it so that the function would check for each animal to see if they had an adult if not it will go to the next animal to check if no animal has an adult it will just skip as if nothing happened.
T - 490 P - 283 Tu - 291				Broke			Array was supposed to adjust appropriately to a large number of animals	There was another core dump	My logic in calling on the resizing function was flawed. Had to put in my if statements before the end buy to compensate just in case if the babies made array full or if the amount bought at the end made the array full.

Reflection

This one was very tough for me for some reason. At the beginning I could not think of what to do first. So, what I did initially was create my menu since I have done it multiple times before. Afterwards I wrote out small details of what I needed. The tigers, penguins, and turtles. I initially was going to do split everything in multiple files while having main call on the objects, however, as time went by I started to just use the zoo constructor as a “main” of some sorts. I know it is probably bad practice but that is where I ended up at. From there I had my variables initialized and member function called. I struggled to change the variables as every time I tried to within the function it would return the same value that I initialized it with. Which I think is because I was initializing the program within the constructor and it keeps resetting? So, with that in mind I then made most things a reference to the variable in order to change the integer within it. I struggled to change the dynamic array multiple times because I had forgotten that in order to double it I would have to input the numbers in another bigger array then copy the contents of it into the new one and then delete the old one then point to the new one using the old one’s name. I was stuck on the event portion as well as I could not figure out the logic into producing babies while reconstructing the array so I just split the two and added an if statement to help with the logic within the constructor. Overall this project gave me so much trouble just because I could not think for the life of me where to start. If I had known where I wanted to start this may have been much easier. In the end after cooling off for a couple days I was able to complete the assignment putting in functions that were needed for the assignment. The inheritance portion was difficult and since I had already placed most of my functions and logic in the zoo class. I then initiated the objects of the tiger, penguin, and turtle class to inherit the animal function and take in the initiated object of the animal. If I didn’t have so many other things to stress about I think this project would have gone much smoother but everything was piling up and it gave me a difficult time to process everything.