

# SimulationBattles

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Simulate the predictor (age in months)

```
age <- rnorm(1000, mean = 50, sd = 10)
```

Specify the deterministic function

```
my_det <- function(x, a, b){  
  resp <- exp(a + b*x)/1+exp(a+b*x)  
  return(resp)  
}
```

Feed predictor data into the deterministic function

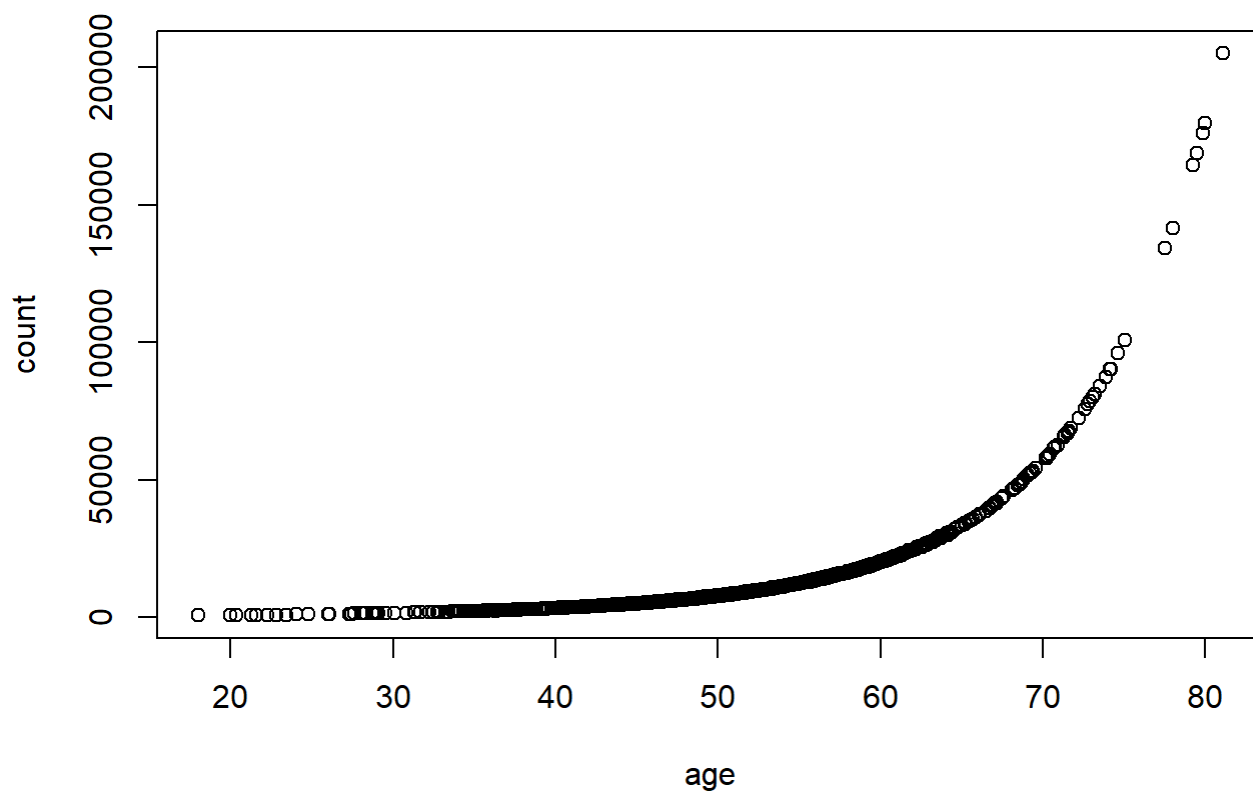
```
det <- my_det(age, 1, 0.01)
```

Link function

```
link <- exp(det)
```

Generate count (of eggs) using the poisson distribution. Visualize data, write to csv.

```
count <- rpois(length(age), lambda = link)  
  
data <- cbind(age, count)  
  
plot(count ~ age, data = data)
```



```
colnames(data) <- c("Predictor", "Response")
```

```
write.csv(data, file = "C:/Users/nboucher/Box Sync/Fall 2023 Classes/IBIO 831/Inference Battles/data.csv")
```

We are hatchery managers trying to maximize yield of the delicious Statfish (*Poisson poisson*). We think that age is an important determiner of fecundity, so we have collected data of female statfish age (in months) as well as how many eggs they produce (number of eggs).