

# Assignment 5: Modeling COVID-19

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## Exercise 1

```
days_range <- 1:250
```

## Exercise 2

```
susceptible <- 300000000  
infectious  <- 1  
recovered   <- 0
```

## Exercise 3

```
beta  <- 0.25  
gamma <- 0.125  
N     <- 300000001  
  
for(day in 2:250){  
  susceptible[day] <- susceptible[day - 1] - (beta * susceptible[day - 1] * infectious[day - 1])  
  infectious[day]  <- infectious[day - 1] + (beta * susceptible[day - 1] * infectious[day - 1])  
  recovered[day]   <- recovered[day - 1] + (gamma * infectious[day - 1])  
}
```

## Exercise 4

```
library(tibble)  
  
covid_sim <- tibble(  
  day          = days_range,  
  susceptible = susceptible,  
  infectious   = infectious,
```

```
    recovered = recovered  
)
```

**Exercise 5**

**Exercise 6**

**Exercise 7**

**Exercise 8**

**Academic Integrity statement**