In brief, given a data sample, develop three different models to fit the data and make a short presentation about it. Please make sure to include the details of the approach you employed in each method. As well as plots showing how well each model fits the data and the corresponding comparison among models.

Please note that your presentation file (PPT/PDF) will be delivered to Professor Wang, who then, based on your file, will determine the direction of your research. Thus, you are advised to do your best at clearly explaining your approach and pay special attention to the comprehensibility of the file you deliver. Failure to deliver such a simple task will make it impossible to assign you further tasks and Professor Wang might see fit to remove you from the program.

Task

Given the data set:

- Fit a model using least square method
- Fit a model using polynomial regression method
- Fit a model with a method of your choice
- Make a presentation (PPT/PDF) of your approach and plots of your model compared to the data

Data

Rack shutdown - Server Inlet Air Temperature ($°C$).

```
data <- read.csv("transient_exp_data.csv")
head(data)
```

```
##   Time.s. R1C1 R1C2 R1C3 R1C4 R2C1 R2C2 R2C3 R2C4 R3C1 R3C2 R3C3 R3C4
## 1       0 17.3 16.4 18.1 18.2 14.4 14.6 15.8 18.8 17.0 15.9 15.6 16.5
## 2     100 17.1 16.1 17.9 18.1 14.3 14.5 15.7 18.5 16.9 15.8 15.5 16.4
## 3     200 16.9 16.2 17.4 17.8 14.2 14.4 15.4 18.1 16.7 15.6 15.2 16.0
## 4     300 16.6 15.8 17.3 17.4 14.1 14.2 15.2 17.8 16.3 15.3 15.0 15.7
## 5     400 16.3 15.6 17.1 17.1 13.9 14.0 14.9 17.1 16.1 15.1 14.8 15.6
## 6     500 16.0 15.3 16.6 16.8 13.7 13.8 14.7 17.0 15.8 15.0 14.6 15.3
```

The sample data is from Rack 1 to 3 and cabinet (server) 1 to 4.

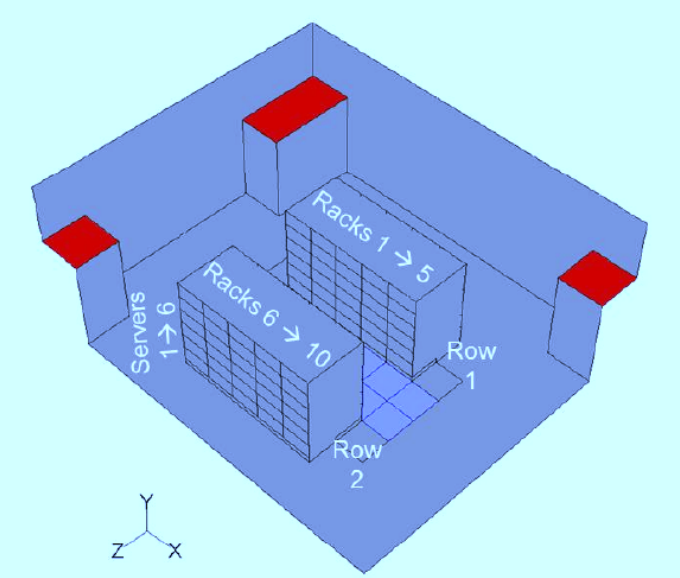

Figure 1: Data Center