

# Homework 1

due Jan 19, 2021, 6:00pm

1. Compute

$$2^2 + 4^2 + 6^2 + \cdots + 998^2 + 1000^2,$$

the sum of squares of all *even* numbers from 2 to 1000.

2. How many digits does  $N = 1234567891011121314\dots9998999910000$  have, where  $N$  is formed by concatenating  $1, 2, 3, \dots, 9999, 10000$ ? (*Hint:* you might want to look up the functions `paste()` and `nchar()`)
3. Recall the UK height data `heights.txt` we used in class. What is maximum `Mheight`? What is minimum `Dheight`?

`iris` is a dataset that comes with base R. It consists of 5 columns, say `Sepal.Length`, `Sepal.Width`, `Petal.Length`, `Petal.Width`, `Species`, which are features related with Iris flowers. You can view the first few rows using `head()`:

```
head(iris)
```

```
##   Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1          5.1         3.5          1.4          0.2  setosa
## 2          4.9         3.0          1.4          0.2  setosa
## 3          4.7         3.2          1.3          0.2  setosa
## 4          4.6         3.1          1.5          0.2  setosa
## 5          5.0         3.6          1.4          0.2  setosa
## 6          5.4         3.9          1.7          0.4  setosa
```

4. How many observations (i.e., rows) does the dataset `iris` have?
5. What is the *fifth* smallest value of `Sepal.Length`?