01 ChPts A1A2

A1.4

Exercise. Give at least 8 variables for University students and classifying them as either categorical or quantitative.

E.g., GPA is **quantitative**.

Possible variables:
- Age (Quantitative)
- Expected Graduation Year (Quantitative)
- GPA (Quantitative)
- Scholarship Amount (Quantitative)
- Country of Birth (Categorical)
- Honors received (Categorical)
- Major (Categorical)
- International or Domestic Student (Categorical)

A1.13

Exercise. Hemoglobin E (HbE) is a variant of Hemoglobin A (HbA) with a mutation in the β globin. It has been suggested that HbE provides some protection against malaria virulence when heterozygous, but is causes anemia when homozygous.

The table below gives the counts of differing hemoglobin genotypes on two Indonesian islands.

genotype	AA	AE	EE
Flores	128	6	0
Sumba	119	78	4

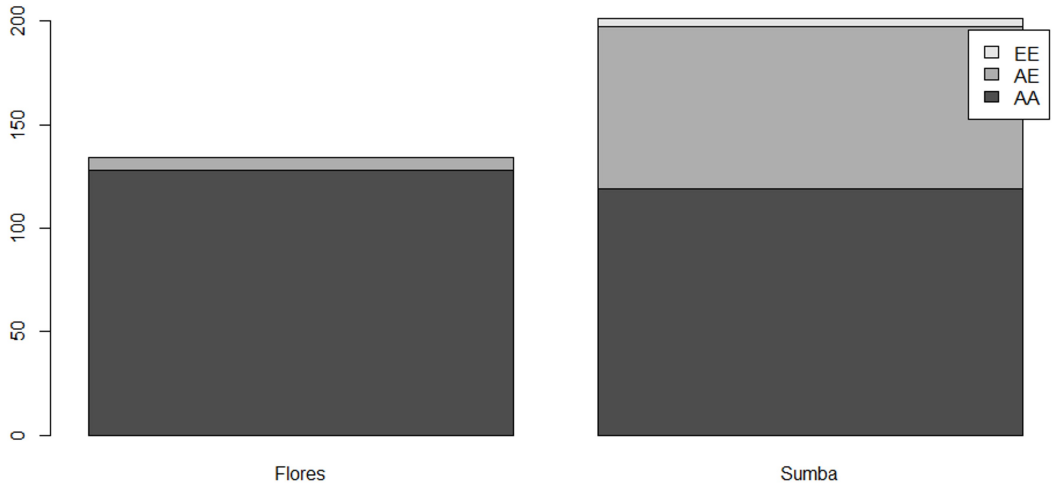
Make a segmented bar chart of the data on hemoglobin genotypes. Have each bar display the distribution of genotypes on the two Indonesian islands.

- Bar chart should have two bars, one for Flores and the other for Sumba.
- Segments should show the breakdown by genotype.
- Copy and paste your code into your solutions or insert them directly into a RMD file.

```
log10(100)  # the log base 10 of 100 is 2 since 10^2 = 100
```

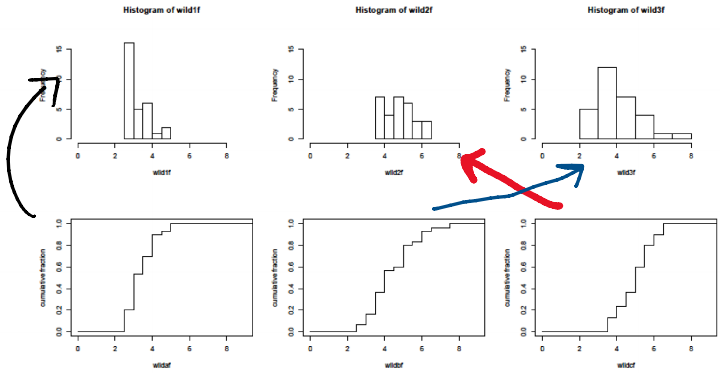
```
## [1] 2
```

```
> Hemoglobin<-matrix(c(128, 119, 6, 78, 0, 4), ncol=3)
> colnames(hemoglobin)<-c("AA", "AE", "EE")
> rownames(hemoglobin)<-c("Flores", "Sumba")
> barplot(t(hemoglobin), legend=colnames(hemoglobin))
```



A2.9

Exercise. The histogram for data on the length of three bacterial strains is shown below. Lengths are given in microns. Below the histograms (but not necessarily directly below) are the corresponding empirical cumulative distribution functions.



Match the histograms to their respective empirical cumulative distribution functions.

Can draw arrows or describe in text.