

EXERCISES 1.1 ¹Probability with *R*: An Introduction with Computer Science Applications: Jane M. Horgan, Wiley 2008

1. In a class of 50 students of computing, 23 are female and 27 are male. The results of their first year Java programming examination are:

Females: 57, 59, 78, 79, 60, 65, 68, 71, 75, 48, 51, 55, 56, 41, 43, 44, 75, 78, 80, 81, 83, 83, 85

Males: 48, 49, 49, 30, 30, 31, 32, 35, 37, 41, 86, 42, 51, 53, 56, 42, 44, 50, 51, 65, 67, 51, 56, 58, 64, 64, 75

- (a) Read these data into *R* by storing them in the following ways:

- As two vectors, one for the females and one for the males:

```
marksfemale <- c( 57, 59, 78, 79, 60, 65, 68, 71, 75, 48, 51, 55, 56, 41, 43, 44, 75, 78, 80, 81, 83, 83, 85)
```

```
marksmale <- c(48, 49, 49, 30, 30, 31, 32, 35, 37, 41, 86, 42, 51, 53, 56, 42, 44, 50, 51, 65, 67, 51, 56, 58, 64, 64, 75)
```

reads the data into two vectors designated *marksfemale* and *marksmale*.

```
gendermarks <-rep(c("Female", "Male"), c(23, 27))
```

creates a vector containing *Female* repeated 23 times, followed by *Male* repeated 27 times.

Should we wish to stick with numerics, we might label females by “1”, and males by “2”. Then

```
gender <-rep(1:2, c(23, 27))
```

creates a vector containing 1 repeated 23 times, followed by 2 repeated 27 times.

- As a one vector, with a factor vector designating the gender.

```
marks <- c( 57, 59, 78, 79, 60, 65, 68, 71, 75, 48, 51, 55, 56, 41, 43, 44, 75, 78, 80, 81, 83, 83, 85, 48, 49, 49, 30, 30, 31, 32, 35, 37, 41, 86, 42, 51, 53, 56, 42, 44, 50, 51, 65, 67, 51, 56, 58, 64, 64, 75)
```

reads the data into a vector designated *marks*.

- (b) If it was discovered that the 34th was entered incorrectly and should have obtained the marks 46 instead of 86, use an appropriate editing procedure to change this.

With two vectors, the 34th entry is the 7th in *marksmale*

```
marksmale[7] <-46
```

With one vector

```
marks[34] <-46
```

(c) Save the workspace in a suitable directory for access later.

Click on

File/Save Workspace

which allows you to specify directory `F:\ca219` say. *R* returns

```
>save.image("F:\\ca219\\marks")
```