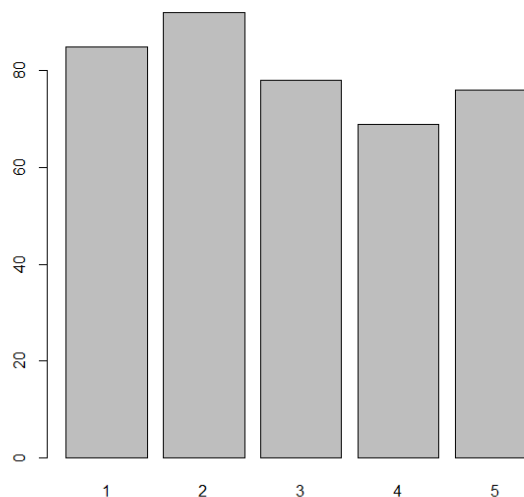


Assignment 3

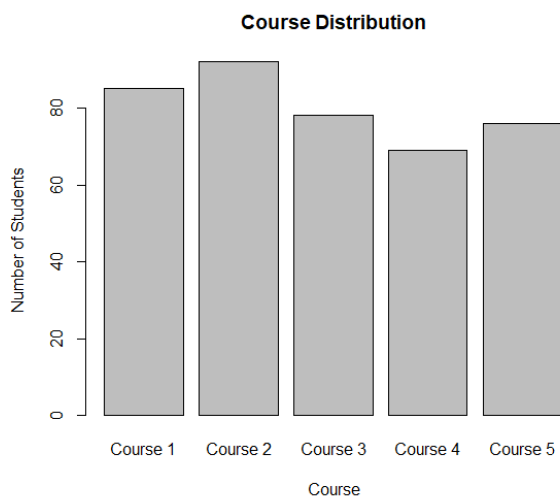
There are 400 first year students in a college where five different elective courses are being offered. Each student is randomly assigned to one of the courses denoted by 1, 2, 3, 4, 5. The data on courses assigned to students is as follows and stored in a data vector called `course`.

```
3, 2, 3, 2, 3, 3, 2, 4, 2, 5, 3, 3, 5, 4, 3, 3, 4, 5, 5, 3, 4, 5, 2, 3, 2, 5, 1, 2, 3, 1, 1, 1, 5, 1, 5,
2, 1, 3, 5, 5, 4, 2, 1, 4, 2, 3, 3, 4, 1, 5, 4, 2, 3, 3, 2, 1, 1, 4, 1, 1, 1, 5, 3, 3, 2, 4, 2, 3, 4, 3,
4, 1, 3, 5, 1, 1, 1, 5, 4, 4, 1, 3, 1, 4, 4, 5, 4, 3, 1, 5, 5, 2, 3, 5, 2, 5, 1, 3, 1, 2, 3, 3, 5, 4, 1,
3, 4, 3, 2, 1, 5, 3, 1, 4, 5, 4, 1, 3, 5, 5, 3, 3, 5, 2, 2, 2, 4, 4, 2, 2, 1, 1, 3, 4, 5, 3, 5, 2, 2, 4,
3, 3, 1, 4, 3, 2, 4, 4, 2, 3, 3, 1, 4, 5, 2, 2, 4, 5, 1, 2, 4, 2, 1, 3, 5, 5, 2, 4, 2, 3, 1, 2, 2, 3, 2,
2, 2, 2, 4, 1, 1, 2, 5, 2, 3, 5, 5, 4, 2, 1, 5, 5, 1, 3, 5, 3, 1, 4, 4, 3, 3, 1, 1, 1, 4, 3, 5, 5, 5, 4,
5, 1, 3, 2, 2, 1, 1, 1, 5, 1, 2, 4, 1, 3, 2, 5, 4, 2, 3, 1, 5, 5, 2, 1, 2, 1, 1, 4, 2, 5, 1, 2, 5, 1, 4,
1, 2, 3, 2, 1, 4, 4, 1, 4, 1, 4, 5, 2, 1, 3, 2, 4, 2, 1, 1, 2, 2, 2, 5, 2, 3, 2, 2, 3, 5, 5, 5, 5, 2, 5,
1, 2, 4, 1, 5, 2, 3, 1, 5, 2, 4, 1, 4, 1, 5, 4, 2, 2, 4, 5, 4, 1, 1, 3, 1, 3, 2, 5, 2, 5, 1, 4, 2, 3, 5,
2, 1, 3, 2, 1, 5, 5, 2, 3, 1, 5, 1, 2, 5, 2, 4, 3, 2, 3, 5, 1, 3, 1, 5, 5, 1, 2, 4, 2, 4, 1, 3, 1, 3, 3,
1, 4, 3, 3, 5, 3, 4, 2, 4, 4, 3, 1, 2, 3, 2, 3, 5, 4, 2, 5, 2, 1, 2, 2, 4, 2, 1, 3, 1, 3, 1, 2, 2, 5, 5,
4, 5, 3, 4, 2, 4, 5, 4, 4, 1, 2, 3, 2, 5, 4
```

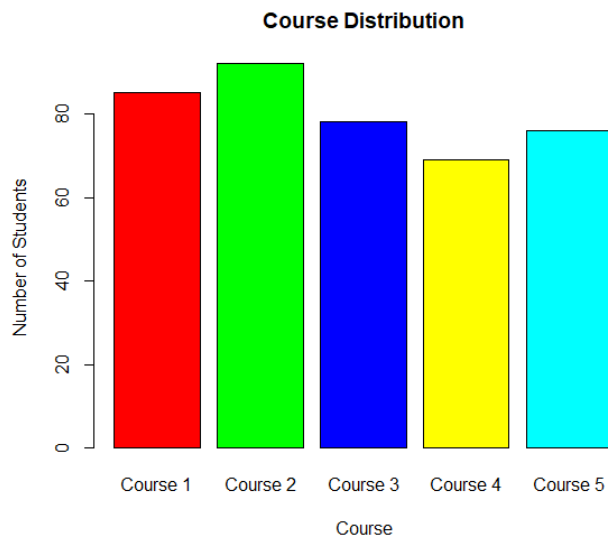
1. Which of the following is the correct R command to draw the following bar plot from `course` data ?



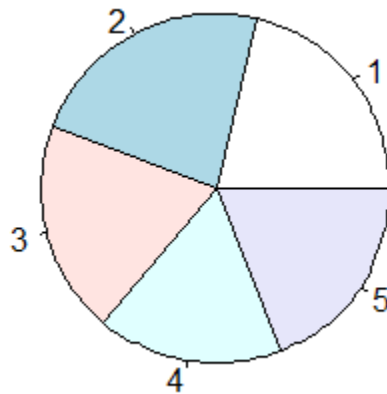
2. The outcome of the R command `barplot(table(course))/length(course)` when executed in the R console is
3. The outcome of the R command `barplot(table(course)/length(course))` when executed in the R console is
4. What is the correct R command to draw the following exact bar plot from `course` data:



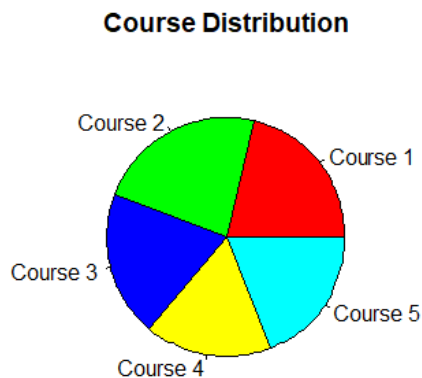
5. What is the correct R command to draw the following bar plot from `course` data:



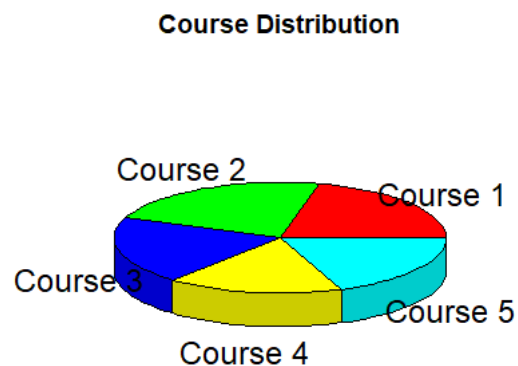
6. What is the correct R command to draw the following pie diagram from `course` data:



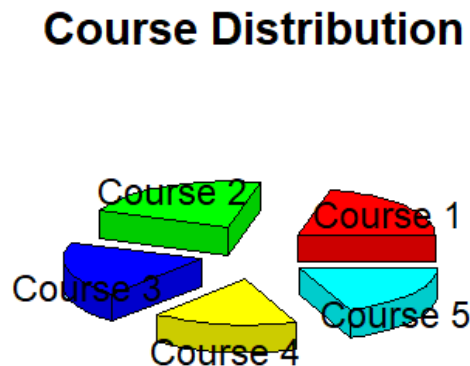
7. What is the correct R command to draw the following pie diagram from `course` data:



8. What is the correct R command to draw the following 3-dimensional pie diagram from `course` data:



9. What is the correct R command to draw the following 3-dimensional pie diagram from `course` data:

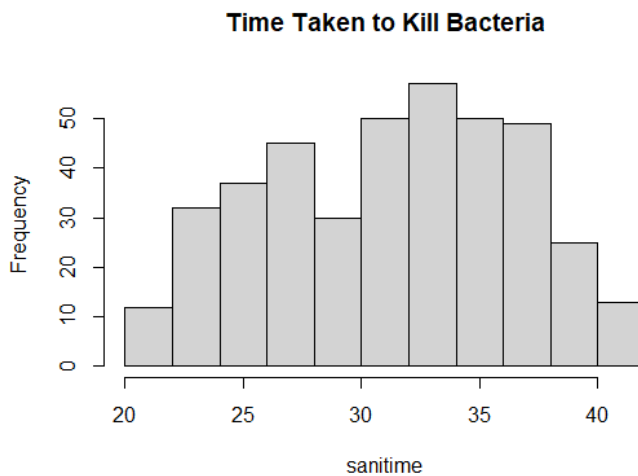


A new alcohol based sanitizer is tested on a total of 400 samples of bacteria and the time taken (in seconds) by sanitizer to completely eradicate each sample is stored in a data vector `sanitime`.

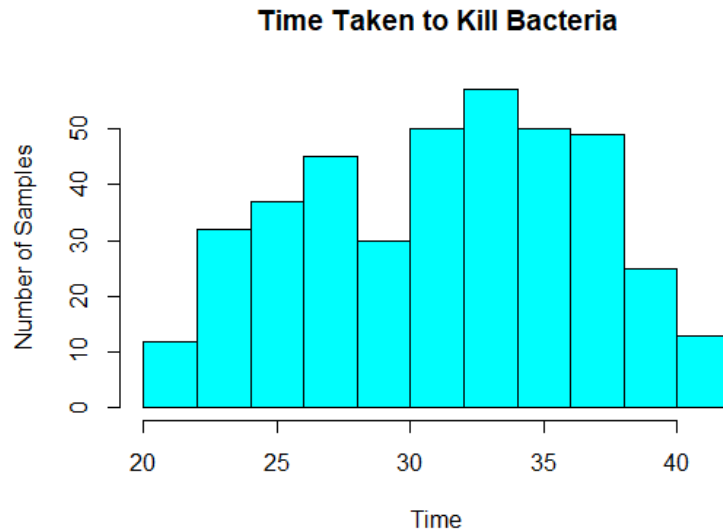
34.4, 37.3, 27, 33.2, 34, 24.3, 32.1, 25.4, 32.1, 35.9, 29.4, 21.1, 31.5, 33.8, 29.3, 39.3, 39.3, 27.7, 29.5, 40.5, 24, 37.3, 22.8, 39.3, 31.1, 27.9, 22.4, 39.8, 27.3, 40.6, 32.1, 29.3, 23.8, 31.6, 35.1, 31.6, 29.3, 33.4, 25.5, 27.7, 33.1, 31.1, 33.7, 33.3, 31.7, 24.4, 27.4, 36.6, 36.2, 21.8, 32.5, 37.9, 31.4, 34.1, 38.6, 28.7, 29.6, 28.4, 26.6, 23.9, 32.9, 25.1, 30.1, 25.3, 23.2, 23.3, 33, 33.4, 37.8, 36, 22.1, 32.5, 36, 35.6, 35.2, 33.8, 23.9, 23.7, 37, 26.3, 36.7, 36.9, 31.4, 27.1, 32.3, 31.3, 36.4, 33.9, 27, 27, 40.7, 34.2, 35.2, 32.9, 34.4, 29.2, 34.4, 33.3, 38.7, 37.9, 32.5, 36.9, 30.2, 33.4, 30.2, 23.7, 31.8, 26.3, 24.7, 28.8, 26.9, 24.6, 39.7, 30.5, 25.7, 24.3, 34.6, 35.3, 32.8, 22.1, 33.5, 39.7, 26.2, 25.5, 30.3, 32.8, 35.7, 30.1, 40.6, 33.7, 37.4, 38, 38.7, 25.3, 31.7, 22.9, 23.3, 33.6, 34.9, 34.8, 39.1, 31.3, 31.7, 30.2, 21.9, 37.2, 34, 23.9, 31.7, 26.2, 36.2, 36.1, 37.3, 35.8, 39.2, 25.7, 27.4, 38.6, 31.9, 32.6, 39.3, 35.7, 37.1, 29.8, 34.7, 26.8, 35.1, 37.9, 37.3, 38.2, 26.6, 25.5, 28.8, 40.2, 28.7, 22.2, 35.4, 37.2, 27.8, 30.3, 32.9, 37.9, 31.8, 36.3, 40.6, 35.4, 29.4, 40.4, 22.7, 31.3, 36.6, 24.6, 38.7, 31.3, 40.4, 37.5, 36.8, 34.3, 24.2, 39.9, 38.4, 37.6, 32.1, 32.8, 26.5, 40, 40.6, 35.6, 32.5, 23.6, 26.1, 26.5, 24.8, 23.2, 35.7, 38.7, 21.9, 27.7, 39.4, 23.5, 28.2, 33.9, 37.8, 25.3, 32, 31.8, 31.8, 26.8, 31, 35.3, 35.6, 25.8, 33, 36.9, 34, 27.2, 27.9, 29.8, 34, 27.3, 26.4, 21.9, 31.7, 29.3, 35.2, 36.6, 34.9, 40.1, 36, 34, 37.8, 28.3, 31.7, 37.1, 30.6, 32.6, 26.6, 32.5, 31, 34.3, 24.8, 35.4, 32.6, 32.4, 32.9, 33, 26.9, 32.2, 36.2, 35, 31.1, 34, 25.3, 24, 34.1, 25, 36.2, 31, 36.3, 34.1, 31.9, 31.3, 37.4, 21.9, 33.2, 38.3, 31.4, 24.8, 25.5, 22.4, 22, 32.5, 35.8, 26.6, 38.8, 30.9, 23.1, 23.5, 31.6, 24, 31.6, 37.5, 29.8, 26.2, 38, 31.3, 25.3, 32.9, 27.5, 26.5, 27.1, 25.9, 21.7, 27, 35.4, 28.5, 22.3, 25.6, 25.4, 27.6, 29.1, 36, 29.1, 25.7, 36.3, 35.3, 21.8, 27.3, 37.9, 36.4, 33.6, 22.7,

31.1, 29.8, 33.9, 35.9, 22.7, 34.7, 39.7, 26, 33.5, 30.6, 22, 32.1, 30.6, 32.4, 29.4, 22.6, 25.9, 27.9, 25.6, 34.4, 29.3, 34.8, 24.1, 40.2, 31.5, 39.9, 34.6, 24.1, 22.4, 34.3, 37.9, 40.2, 26.9, 28, 35.8, 36.9, 24.1, 26.7, 25.9, 36.4, 35, 30, 39.9, 29.1, 22.5, 34.4, 26.4, 28, 33.6, 33.4, 31.6, 36.1, 29.7, 29.3, 40.1, 31.7, 37.3, 21.7, 21.5, 22.9, 31.9, 29.3, 27.9, 37.4, 25.8, 37.2, 33.7, 34.5

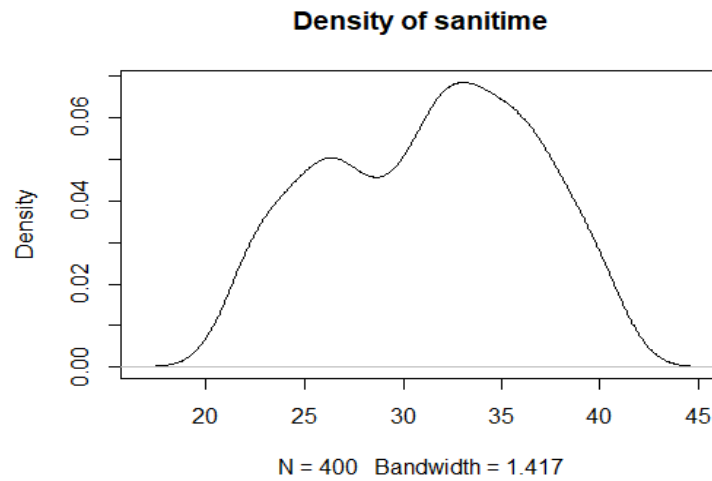
1. What is the correct R command to draw the following plot from [sanitime](#) data:



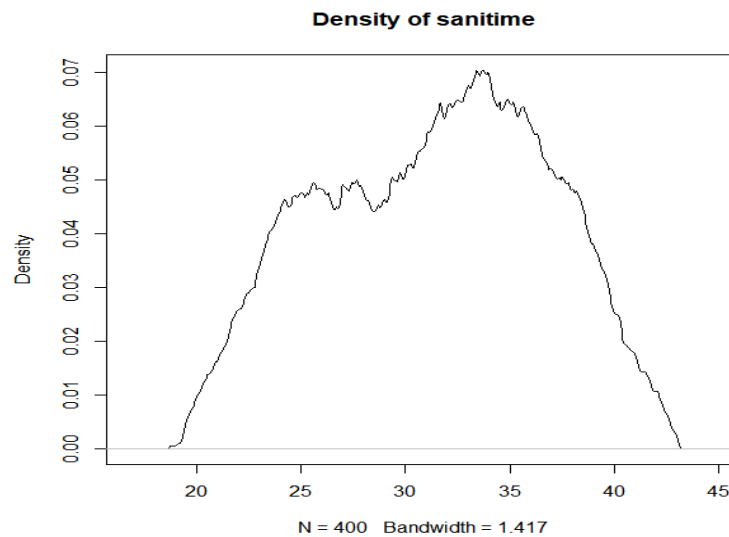
2. What is the correct R command to draw the following plot from [sanitime](#) data:



3. What is the correct R command to draw the following plot from [sanitime](#) data:



4. What is the correct R command to draw the following plot from [sanitime](#) data:



5. The stem plot for the following data on the heights of 25 persons

5.3, 5.3, 5.2, 5.8, 4.9, 5.9, 5.7, 4.9, 5.9, 6.0, 5.7, 5.2, 6.6, 5.9, 5.7, 5.7, 6.3, 6.1,
5.6, 6.0, 7.0, 6.2, 6.3, 5.8, 4.9 is

6. What is the correct R command to produce the following stem plot for the following data on the heights of 25 persons

5.34, 5.28, 5.22, 5.77, 4.91, 5.88, 5.71, 4.92, 5.90, 5.96, 5.70, 5.23, 6.56, 5.93, 5.65, 5.72, 6.32, 6.06, 5.64, 6.02, 6.97, 6.19, 6.28, 5.77, 4.91

```
48 | 112
50 |
52 | 2384
54 |
56 | 4501277
58 | 8036
60 | 269
62 | 82
64 | 6
66 |
68 | 7
```