

CT5102: Programing for Data Analytics 2018/19

Assignment 1: Atomic Vectors (10 marks)

1. Use the **sample()** function to simulate the roll of two dice (N=1000, roll the first dice a 1000 times and then the second dice a 1000 times). Count the number of outcomes that are odd and even. Produce the following vector as output (results should be the same as this, given that the **set.seed(99)** function is called.

```
> ans
      Number Odd Number Even
           523           477
```

2. For the data generated, calculate the frequency of each outcome (i.e. the sum of the two dice values for each roll). The following vector should be generated, and the R function **table()** cannot be used, although it should be used to confirm the result.

```
> ans1
 2   3   4   5   6   7   8   9  10  11  12
28  72  84 108 128 162 123 127  86  54  28
```

3. Write a script to display the output of every 100th combined dice roll, starting at location 1, and using a boolean vector to extract the result. (Hint the **rep()** function could be useful for this).

The R Functions to be used include:

- **set.seed(99)**, to ensure that the results shown below are replicated.
- **sample()** - to generate the random samples