Solution

1. Measurements yielded the frequencies $f_i = [0, 2, 5, 7, 6, 9, 13, 8, 5, 3, 0]$ in ith class $i = 1, 2, ..., 11$. Use `for` to create a table with columns classes i, frequencies f_i, cumulative frequencies F_i, relative frequencies f_i/n and relative cumulative frequencies F_i/n, and create m-script(`for_p1eng.m`).

```
clear,clc,close all

fi=[0 2 5 7 6 9 13 8 5 3 0];
n=sum(fi);
tab=[];
Fi=0;
for i=1:length(fi)
    Fi=Fi+fi(i);
    tab=[tab; i fi(i) Fi fi(i)/n Fi/n];
end
tab
```

Solution

```
>> for_p1eng

tab =
    1.0000         0         0         0         0
    2.0000    2.0000    2.0000    0.0345    0.0345
    3.0000    5.0000    7.0000    0.0862    0.1207
    4.0000    7.0000   14.0000    0.1207    0.2414
    5.0000    6.0000   20.0000    0.1034    0.3448
    6.0000    9.0000   29.0000    0.1552    0.5000
    7.0000   13.0000   42.0000    0.2241    0.7241
    8.0000    8.0000   50.0000    0.1379    0.8621
    9.0000    5.0000   55.0000    0.0862    0.9483
   10.0000    3.0000   58.0000    0.0517    1.0000
   11.0000         0   58.0000         0    1.0000
```

Solution

2. Use the `for` loop to calculate the factorial $i = 1, 2, ..., 10$ and create a table with i in the first column and a factorial of $i!$ in the second column and create m-script(`for_p2eng.m`).

```
1  clear,clc
2
3  tab=[];
4  f=1;
5  for i=1:10
6      f=f*i;
7      tab=[tab; i f];
8  end
9  tab
```

Solution

```
>> for_p2eng

tab =
           1           1
           2           2
           3           6
           4          24
           5         120
           6         720
           7        5040
           8       40320
           9      362880
          10     3628800
```

Solution

3. Use the `while` loop to create a table with $x = 1, 2, 3...$ in the first column (x will increase by 1 in the loop body), in the second column x^2 and third x^3. Stop the loop until $x^3 < 2000$ is reached and create m-script(`while_p1eng.m`).

```
clear,clc,close all

x=1;
tab=[];
while x^3<2000
    tab=[tab; x x^2 x^3];
    x=x+1;
end
tab
```

Solution

```
>> while_p1eng

tab =
           1           1           1
           2           4           8
           3           9          27
           4          16          64
           5          25         125
           6          36         216
           7          49         343
           8          64         512
           9          81         729
          10         100        1000
          11         121        1331
          12         144        1728
```