

# Lab #4

## Contents

1 Task #4	1
2 Task #5	2
3 Task #6	2
4 Task #7	2
5 Task #8	3

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## 1 Task #4

Write a program which prints lyrics of a Swedish version of the song "99 bottles of beer".

The lyrics of the song are as follows:

```
99 bottles of mjölk on the wall, 99 bottles of mjölk.  
Take one down, pass it around, 98 bottles of mjölk on the wall
```

```
98 bottles of mjölk on the wall, 98 bottles of mjölk.  
Take one down, pass it around, 97 bottles of mjölk on the wall
```

...

```
No more bottles of mjölk on the wall, no more bottles of mjölk.  
We've taken them down and passed them around; now we're healthy and strong!
```

**Hint:** to print a line of text with a number you can use `num2str()` function as follows.

```
bottles = 99;
```

```
disp([num2str(bottles) ' bottles of mjölk,' num2str(bottles) ' bottles of mjölk.']);
```

This code will print a string "99 bottles of mjölk on the wall, 99 bottles of mjölk.". Do not forget to replace variable `bottles` with your variable name. Print the second line using the same idea.

## 2 Task #5

Write a script which computes the product of all elements of the vector `v` for any given vector `v`.

For example, for a vector `v = [2, 3, 5, 6]` you should get 180.

## 3 Task #6

Write a script which prints all pairs of elements of a given vector `v`

For example, for a vector `v = [1, 10, 20]`, print

```
1 [1, 1]
2 [1, 10]
3 [1, 20]
4 [10, 1]
5 [10, 10]
6 [10, 20]
7 [20, 1]
8 [20, 10]
9 [20, 20]
```

**Hint:** if you want to print two numbers `a` and `b` on the same line, you can try to use `disp([a, b]);`.

**Hint 2:** You need to use one for loop inside of the other.

## 4 Task #7

Modify task 6 in a way such that it prints only pairs in which sum of the two numbers is greater than 15.

For example, for a vector `v = [1, 10, 20]`, print

```
1 [1, 20]
2 [10, 10]
3 [10, 20]
4 [20, 1]
5 [20, 10]
6 [20, 20]
```

## 5 Task #8

The Fibonacci numbers are the numbers which form a sequence, called the Fibonacci sequence, where each number is a sum of the two preceeding numbers except for the first two numbers which are 1 and 1 (formally, the Fibonacci sequence starts from 0 and 1, but 0 is often omitted as in this task). The first 9 numbers in Fibonacci sequence are:

1, 1, 2, 3, 5, 8, 13, 21, 34, ...

Write a code which computes and prints first 40 numbers in the Fibonacci sequence.