

# Week 1

## [Task 1.1 \(/weto5/viewTask.action?taskId=19&tabId=0&dbId=4\)](/weto5/viewTask.action?taskId=19&tabId=0&dbId=4)

Write a function that given an `Int x`, evaluates to a list of such points in 2-dimensional space (pairs of type `(Int,Int)`), that their Manhattan distance from origin `(0,0,0)` is at most `x`. Use list comprehension.

The type of your function should be

`Int -> [(Int,Int)]`

and you should include the type definition in your code.

Manhattan distance between two points is the sum of x-distance and y-distance. I.e Manhattan distance between `(3,3)` and `(2,6)` is `1+3 = 4` (distance between 3 and 2 + distance between 2 and 6).

*(Edited on 25.8., the first version did not make sense):*

## [Task 1.2 \(/weto5/viewTask.action?taskId=20&tabId=0&dbId=4\)](/weto5/viewTask.action?taskId=20&tabId=0&dbId=4)

Write a function that, given a list of strings and a character evaluates to a list with all the strings of the input list that either begin or end with the input character.

Use list comprehension to find the required strings from the input list.

Include the type definition of your function.

## [Task 1.3 \(/weto5/viewTask.action?taskId=21&tabId=0&dbId=4\)](/weto5/viewTask.action?taskId=21&tabId=0&dbId=4)

We represent playing cards with `(Char,Int)` pairs. 's' means spades, 'h' hearts, 'c' clubs and 'd' diamonds, with number values going from 2 to 14 (Ace being 14). Consider a game where a player gets two cards, and your function needs evaluate how many credits the player wins. The credits are determined as follows:

- If the player has the Ace of Spades, that is `('s',14)` then the player wins 14 credits.
- Otherwise if the player has two consecutive numbers of the same suit (spades, hearts, clubs or diamonds),

- then the player wins 8 credits.
- Otherwise if the player has a pair (same number values), then the player wins 5 credits.
  - Otherwise if the player has two consecutive numbers, then the player wins 4 credits.
  - Otherwise if the player has two cards of the same suit (spades, hearts, clubs or diamonds) then the player wins 2 credits.
  - Otherwise, the player wins 0 credits.

E.g. if the function is called with parameters

('c',8) ('c',7)

Then it should return

8

## [Task 1.4 \(/weto5/viewTask.action?taskId=22&tabId=0&dbId=4\)](/weto5/viewTask.action?taskId=22&tabId=0&dbId=4)

Write a function that, given a list of numbers, produces a list with all elements of the input list such that the element is followed by a greater number in the input list (the next number is greater).

The numbers in the output should be in the same order as in the input.

For example, if the input is [0,5,2,3,2,2,3,1] then the output should be [0,2,2]