Assignment - lab 9

1. Submit your solution for the Problem 1 from Activity 9.
2. Modify the sorting function (**sort_vec**) from "Assignment 8" (problem 3) so that it should take an additional argument **ascending** which causes sorting in increasing order when 'ascending = TRUE'. In other words,

- sort_vect(c(3, 1, 2), ascending = TRUE) = (1, 2, 3)
- sort_vect(c(3, 1, 2), ascending = FALSE) = (3, 2, 1)

3. Consider a simple random walk with starting point 0 and a step -1 or 1. Below is the code with dynamically allocated memory. Write your code with preallocated memory and compare time for both versions using system.time() function (use N = 1000, 10000 and 1000000).

```
N = 1000
data_series = 0
system.time({for (i in 2:N){
  data_series[i] = data_series[i-1] + sample(c(-1, 1), 1)
}
})
```

```
##    user  system elapsed
##   0.010   0.001   0.011
```