# Report on fairness of sailing scoring

## Problem

*Briefly describe the problem you are investigating. What do you expect to see?*

***Report marking criteria – is the problem stated clearly and concisely?***

## Method

*Summarize the method you are using to investigate the problem.*

***Report marking criteria – is the method stated with sufficient detail to allow someone else to replicate the results?***

## Assumptions

*What assumptions have you made that may affect the results?*

***Report marking criteria – are the key assumptions listed?***

## Results

*Show the results of your simulations – including one figure that allows easy comparison. Explain what the results show.*

***Report marking criteria – are the results clear and well-presented? Are appropriate figures used? Are figures labelled and titled?***

## Conclusions

*Briefly summarize your progress towards solving the problem, highlight any limitations and potential future extensions.*

# Scientific Report

## Problem

The problem that we were investigating was questioning the appropriate amount of races to discard to ensure that the scoring system would have a balance between the skilful and inconsistent sailors do not have an advantage.

For context, the sailing scoring system works with sailors competing in several races, and then their worst performance would be removed from their score-sheet, this is meant to be something that makes it fairer to sailors. But I would like to question this system and see if there’s a more effective way of doing this. It’s worth asking what is the correct amount of scores to remove from the scoresheet in order to make sure that the most consistent sailors were the most successful (won the competition).

You could also argue that we should consider removing the most successful score of the z

* What is the correct amount of races to discard in order to allow a balance of skilful & consistent racers to be most successful
* Explain how we remove 1 race from the result
* Why we do this
* What is a ‘skilful’ racer and a ‘consistent’ racer
* Should we consider removing the most successful score too? (Research)

## Method

The method that I used to solving the problem was to observe how the tangent lines and curves of the graphs adjusted depending on how many races were discarded, the most effective way I saw to do this was to run the races a large quantity of races as this would mean more of the possible results would be considered

5^5 = 3,125 different possible arrangements of the positions of the sailors – therefore, to make sure I take all these arrangements into account I will repeat the races at least 4000 times. Of course, many of the arrangements would be repetitions of the same overall result, but I feel that it is appropriate to go beyond what the total amount of arrangements as it will give a more even distribution and make it easier to read on the graphs.

* Speak about the functions
* Lists & tuples etc etc
* How many times ill run the races (how many possible arrangements are there)
* Reasons to run the races this amount of times
* What graphs I used

## Assumptions

I have made several assumptions throughout the task, these may affect the results in several ways the

* 1000 races
* Average position over the races
* Racers could not get disqualified
* Completely Random

## Is it better to be a consistent or inconsistent sailor under this scoring scheme?

## Does this depend on how skilful you are relative to other sailors?

## How would this change if either or no races were discarded or two races were discarded?

* Must include at least 1 matplotlib graph
* Should include a separate file containing Python code used to generate results and figures