

STOR-609 Assessment 1 - Marks and Feedback

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1 Quality of Source Code

- The docstrings for the provided functions are generally good, but some type hints (not necessarily for every argument) could have been used to supplement this. The explanation of how to run the code and the output that is printed is clear and well-formatted.
- Note that `if __name__ == '__main__':` is not really required for a Jupyter notebook (since Jupyter notebooks are not usually used as modules to be imported by other programs).

Mark (out of 5) : 5

2 Solution

Solutions produced are correct.

Mark (out of 5) : 5

3 Understanding Design Principles

- Your use of bitwise operations results in an efficient and elegant **representation** for this problem.
- Your design differs quite significantly from that suggested by the pseudo code provided [here](#).
- The choice to have multiple branch functions rather than a single one makes the design slightly more complicated than it needs to be. For a given problem, this could be aggregated into a single function.
- The recognition for the necessity of deep copying of current states to avoid contamination is good. However, this could have been done directly by the functions which extend or move to the next solution.

Mark (out of 5) : 3.5

4 Quality of Written Communication

- The terminology used throughout to explain backtracking differs from how it is presented in the provided resource (<https://en.wikipedia.org/wiki/Backtracking>).
- Terms like **first**, **next** and extensions are not used, but instead the idea of branching functions is used.
- However the concept of branching function is not really adequately explained. This makes the explanation of the implementation throughout difficult to follow.
- For the integer partition problem, it is not clear how solutions are mutated and extended.

Suggestions

- It would be really good if you also provided pseudo code for each of your **accept**, **reject**, **first**, and **next** methods.

Mark (out of 5) : 4

5 Overall Comments and Marks

- Overall this is a reasonable piece of work.
- You have reflected on your design choices and made some suggestions for improvement.
- You noted some of the limits of backtracking due to computational complexity
- Some of the limitations arise because of poor support for recursion in python. You might want to investigate what this means in more detail to support your future choices of programming system.

Overall Mark (out of 20) : 17.5