OKAGBUE FRANCIS

11279373

ON0206

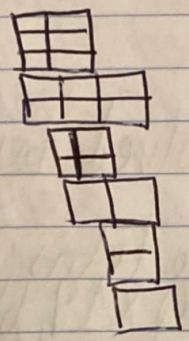
CMPT 317

The Simplified Tetris Problem

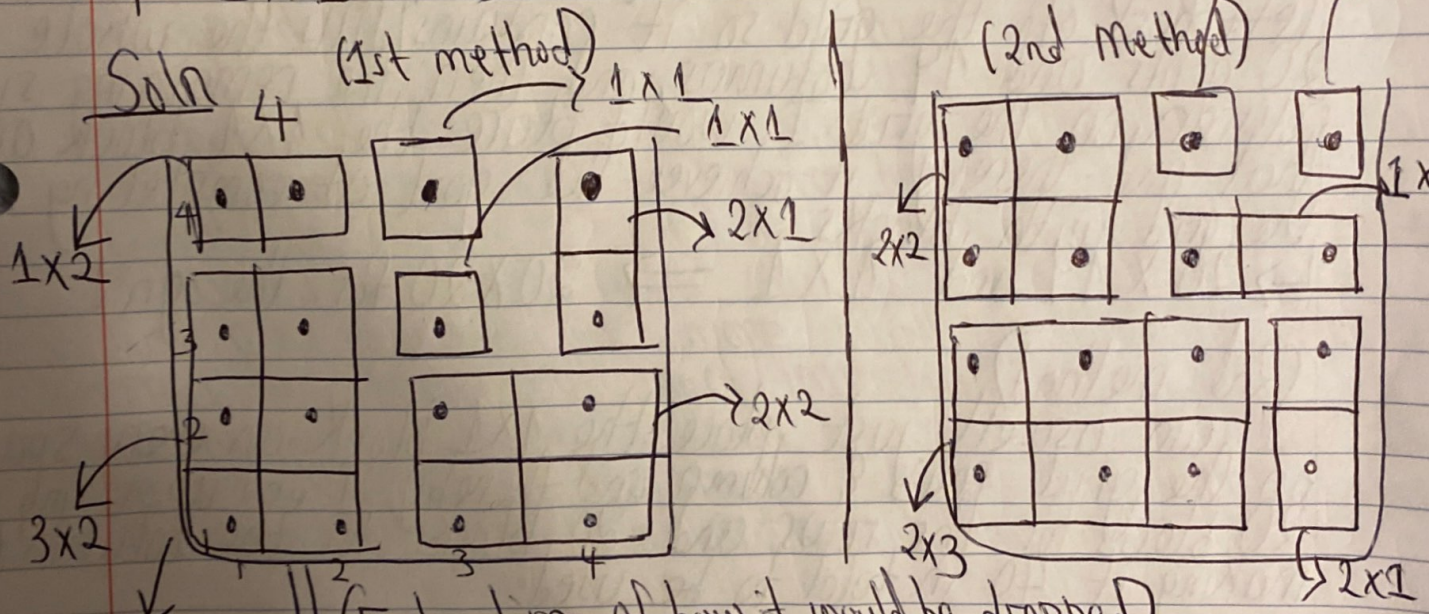
PART 1:-

blocks1.txt

```
4
1 3x2
1 2x3
1 2x2
1 1x2
1 2x1
4 1x1
```



Soln



(Explanation of how it would be dropped)

So here, we would place the 3x2 block tetris in the leftmost side of the grid on the first & second row & third row and first and second column on the grid, and would place the 1x2 block on the left most side on the fourth row and second column and would place the 2x2 block grid on the right on the first two rows & columns and would place the 2x1 block on the right on the third & fourth row & fourth column and then place each of the single 1x1 block on the third & fourth row & third column

PART 2:

blocks2.txt

20
400 1X1
1 20X19
2 20X10

Soln

For this problem, it could be solved by using the single 20X19 and a single 1X1
⟹ So here, for the grid for the tetris to completely fill the grid, I would place the 20X19 block on the left most of the grid so it contains/fills the whole 20 grids and 19 columns, and then the remaining single column on the grid I would place the 1X1 block on that and thereby it achieves the goal of completing the grid with blocks
↳ 20X19 and 1X1 ⟹ 20X20 for the grid

(2nd method)
I can aswell just place the 1X1 block on every space on the grid rows & column and thereby I end up using only 20 blocks for the rows and 20 blocks for the column thereby making it 40 in total to be used.

(3rd method)
Can use the 20X10 block & 1X1 block, would just place the remaining 1X1 block on the right hand side to occupy/fill the remaining 10 columns left, So would need 10 1X1 block and 20X10 block
20X10 block & 10 1X1 block for the column ⟹ 20X20

PART 3:-

⇒ When finding my solution, there was more than one way possible way to find the solution. And YES, I could find more than solution for both the blocks1.txt and blocks2.txt based on how the blocks were placed on the grid. It had different pattern of how you can place the block on the grid that you will end up with more than one possible solution. And for the search, I think/believe a search with a program would end up finding a better solution for these easy problems than what I found using my hand because it would be much more able to check all the possible combination and also would be able to sort, check the grid much more quickly than using your hands (manually). So, for here, I would say it would be better to use the search program because it would be much more quicker than using hands, and also it would be more efficient & less prone to errors than hands. But most importantly, would say it is the best possible solution because it would be able to check different variations that the user/human was not able to exploit/find and would be more quicker.