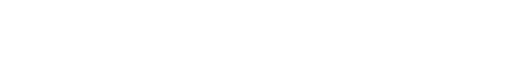
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| --- | --- | --- | --- |
| **Algorithmics** | Student information | Date | Number of session |
| UO:300896 | 24/04/25 | 7 |
|  |
| Surname: De San Claudio Mesa |  |
| Name: Alejandro |

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| 1 |

Activity 1. [Map Colouring]:

|  |  |
| --- | --- |
| ***n*** | ***t Colouring (ms)*** |
| 8 | 0.16 |
| 16 | 0.35 |
| 32 | 0.96 |
| 64 | 2 |
| 128 | 4 |
| 256 | 8 |
| 512 | 22 |
| 1024 | 34 |
| 2048 | 69 |
| 4096 | 137 |
| 8192 | 277 |
| 16384 | 559 |
| 32768 | 1143 |
| 65536 | 2321 |

The method contains a for loop that is executed always n times [O(n)]

Inside the for loop there is a do while loop, which is executed while containsColor() method is true. This method contains a for each loop which best complexity is O(1) and the worst case is O(n).

So when bestCase O(1), while is executed n times [O(1) \* O(n)] = O(n)

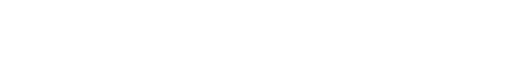
Activities for Algorithmics

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| **Algorithmics** | Student information | Date | Number of session |
| UO:300896 | 13/02/25 | 3 |
| Surname: De San Claudio Mesa |  |  |
| Name: Alejandro |

When worstCase O(n), while is executed once [O(n) \* O(1)] = O(n)

So total complexity is O(n) (for loop) \* O(n) (do while and for each loops) = O(n^2)

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| 2 |



Activities for Algorithmics