Algorithms Projects'21

Requirements Summary

**Group Count:** 4 – 6 members

**Group Registration:** [**Online form**](https://docs.google.com/forms/d/1FjZxgMny88DgTE-hql1SFgKPBA2YaOHutq2DKxbLb9o/edit?usp=sharing) due to **Mon 6-Dec-2021**

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| **Project** | **Given** | **Input** | **Deliverables** | **Grades[[1]](#footnote-2)** | **Bonus** |
| [**Image Filters**](%5b2%5d%20IMAGE%20FILTERS/Image%20Filters.docx) | **C# Code** to   1. open & load image into 2D array 2. display image   Z-Graph library to use it for drawing the graph | **Alpha-Trim Filter**   1. Window size 2. Trim value 3. Max window size for graph   **Adaptive Med Filter**   1. Max window size for the filter (Ws) 2. Max window size for the graph (Wmax) | **Document contains ONLY:**   1. Determine which method is better in each filter based on your results? Explain **why**? | 20% | Search and implement the **fast median filter** that achieves MUCH better performance than any sorting algorithms. |
| **Implementation**:   1. Alpha-trim filter using two methods:    1. Counting sort    2. Select Kth smallest/largest element **(Sec.9.2)** 2. Adaptive median filter using two methods:    1. Counting sort    2. Quick sort 3. Display two graphs (one for the alpha-trim and other for adaptive median) to show the execution time **against different window sizes** (3, 5, 7,…) of different methods. | 60% |
| 20% |

1. Grades distribution is subject to change without prior announcement [↑](#footnote-ref-2)