

# Algorithms Projects'21

## Requirements Summary

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**Group Count:** 4–6 members

**Group Registration:** [Online form](#) due to **Mon 6-Dec-2021**

Project	Given	Input	Deliverables	Grades <sup>1</sup>	Bonus
<a href="#">Image Filters</a>	<b>C# Code to</b> 1. open & load image into 2D array 2. display image  Z-Graph library to use it for drawing the graph	<b>Alpha-Trim Filter</b> 1. Window size 2. Trim value 3. Max window size for graph  <b>Adaptive Med Filter</b> 1. Max window size for the filter ( $W_s$ ) 2. Max window size for the graph ( $W_{max}$ )	<b>Document contains ONLY:</b> 1. Determine which method is better in each filter based on your results? Explain <b>why</b> ?	20%	Search and implement the <b>fast median filter</b> that achieves MUCH better performance than any sorting algorithms.
			<b>Implementation:</b> 1. Alpha-trim filter using two methods: a. Counting sort b. Select $K^{th}$ smallest/largest element ( <b>Sec.9.2</b> ) 2. Adaptive median filter using two methods: a. Counting sort b. Quick sort	60%	
			3. Display two graphs (one for the alpha-trim and other for adaptive median) to show the execution time <b>against different window sizes</b> (3, 5, 7,...) of different methods.	20%	

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<sup>1</sup> Grades distribution is subject to change without prior announcement