

## SECTION C

### Weekly Journal

**Instruction to Student:**

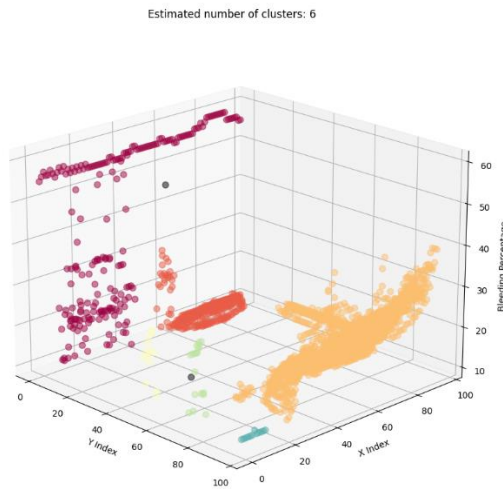
1. On a daily basis, record the specific task that you carried out for that day.
2. At the end of every week, describe one task in more details with diagrams or photos attached.

**Week : 12**      Date from:    27/5/2024                          to    31/5/2024

Department/Section Attached: Assembly Metrology

Day	Tasks Record
Monday	<ul style="list-style-type: none"> <li>• Extracted data and worked on Tableau with more data fields.</li> <li>• Expanded data collection to other inspections as a trial.               <ul style="list-style-type: none"> <li>◦ Query had over 200,000 rows of data, resulting in slow loading.</li> </ul> </li> <li>• Automation python script works.</li> </ul>
Tuesday	<ul style="list-style-type: none"> <li>• Successful linking of network folder to tableau</li> <li>• Trying out new methods of data connection through extraction to decrease query time.</li> <li>• Opted to lot level saving of data instead of wafer level.</li> <li>• Creation of Heatmap requires the design of each wafer</li> </ul>
Wednesday	<ul style="list-style-type: none"> <li>• Got both data and tableau workbook working correctly.</li> <li>• All backend calculation and automation working as expected.</li> <li>• Review and feedback required from other engineers to improve dashboard</li> </ul>
Thursday	<ul style="list-style-type: none"> <li>• Completed Tableau Dashboard, feedback given and improvements to be made.</li> <li>• Worked on an AI Data Clustering for UBLD in Streamlit to improve backend data analysis.</li> <li>• Debugging and testing of new code to optimize the code</li> </ul>
Friday	<ul style="list-style-type: none"> <li>• Added 3D Clustering to UBLD Dashboard</li> <li>• Fixed data source extraction daily</li> <li>• Modified dashboards based off engineer feedback</li> </ul>

Describe one task in more details with diagrams or photos attached.  
Explain the importance/relevance of this task to the company.



In addition to the heatmap displaying the pattern of bleeding on the die, I created an additional data analysis diagram using AI. The pattern can be clearly seen by the heatmap, however, to decrease human involvement and increase machine automation, a 3 dimensional scatter plot was created using X Index, Y index and the Bleeding percentage of the box. Using density based clustering non-parametric algorithm, I was able to create a form of unsupervised learning clustering method which uses the number given a set of points in some space, it groups together points that are closely packed, and marks as outlier points that lie alone in low-density regions (those whose nearest neighbors are too far away). Using this algorithm, I can set the distance and min number of samples that should fall within set distance to classify as a cluster. This sets the sensitivity of the algorithm.

The algorithm clusters these nearby points and forms a number of clusters. Points that do not lie near any cluster would be an outlier and can be classified by the algorithm to be viewed by the user. Next, the algorithm would group each cluster by color, vividly displaying bleeding clusters on the die. This would reduce the time spent by the user to group the bleedings and allows anomalies to be picked out immediately.

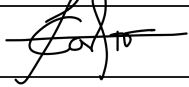
#### Assessment on Student

Grading Scheme :

A (Excellent)	-	Consistently exhibit qualities beyond expectation and norms.
B+ (Very Good)	-	Exhibit qualities above expectation and the norms.
B (Good)	-	Exhibit qualities which are considered necessary to produce good quality work.
C+ (Good Credit)	-	Exhibit good qualities which are the norm.
C (Credit)	-	Exhibit acceptable qualities which are the norm.
D (Pass)	-	Exhibit qualities which varies between the norm and unacceptable standard.
F (Fail)	-	Exhibit qualities which are not acceptable and are hindrances to operations.

Conduct:	Average	Attendance: Average	* Regular / Average / Poor
Performance :	Satisfactory	Punctuality: Satisfactory	* Satisfactory / Unsatisfactory

Remarks :

Name of Supervisor :	<b>Francis Castro</b> <small>Click here to enter text.</small>	Signature :	
*Delete whichever is not applicable		Date :	