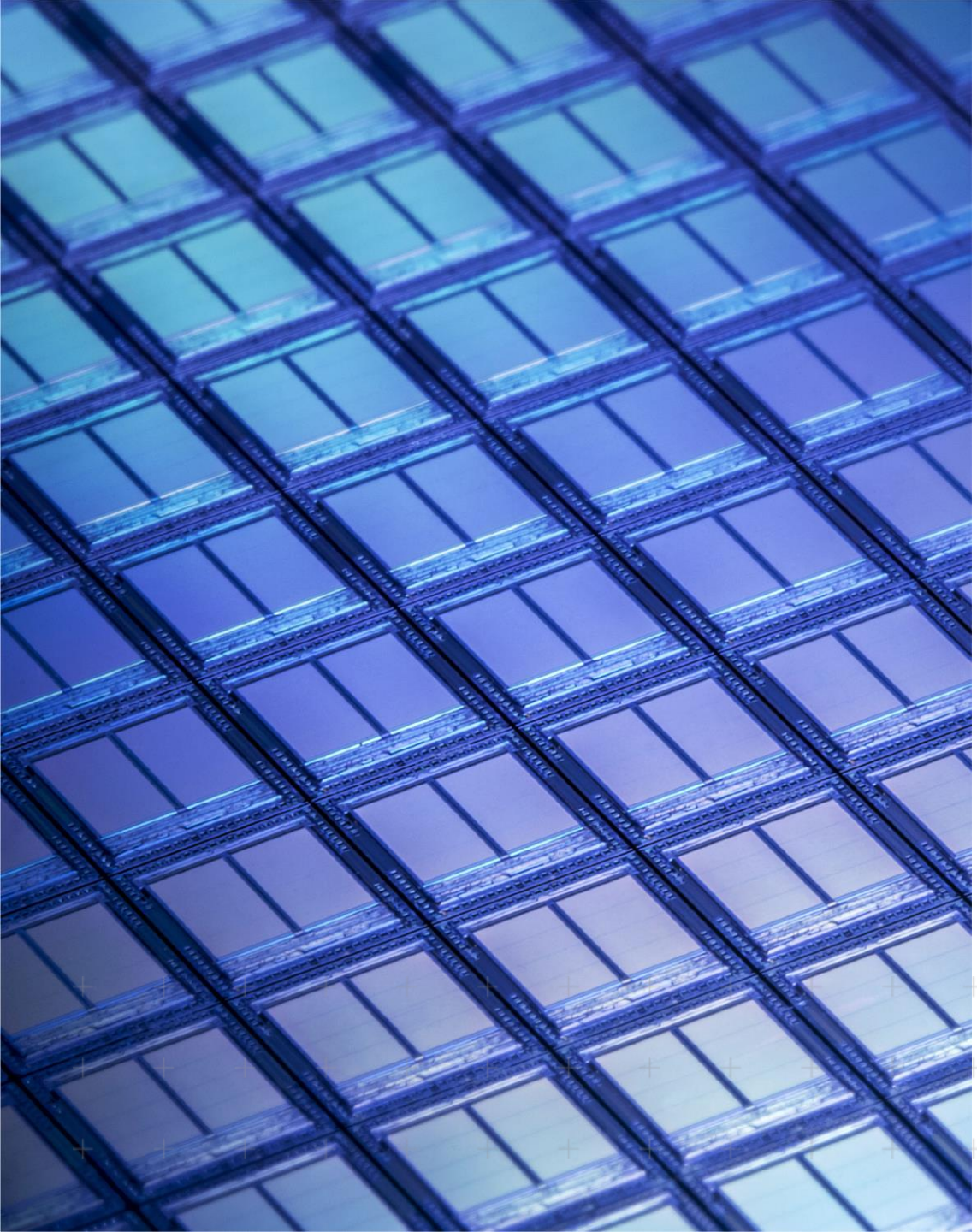


Software Workshop

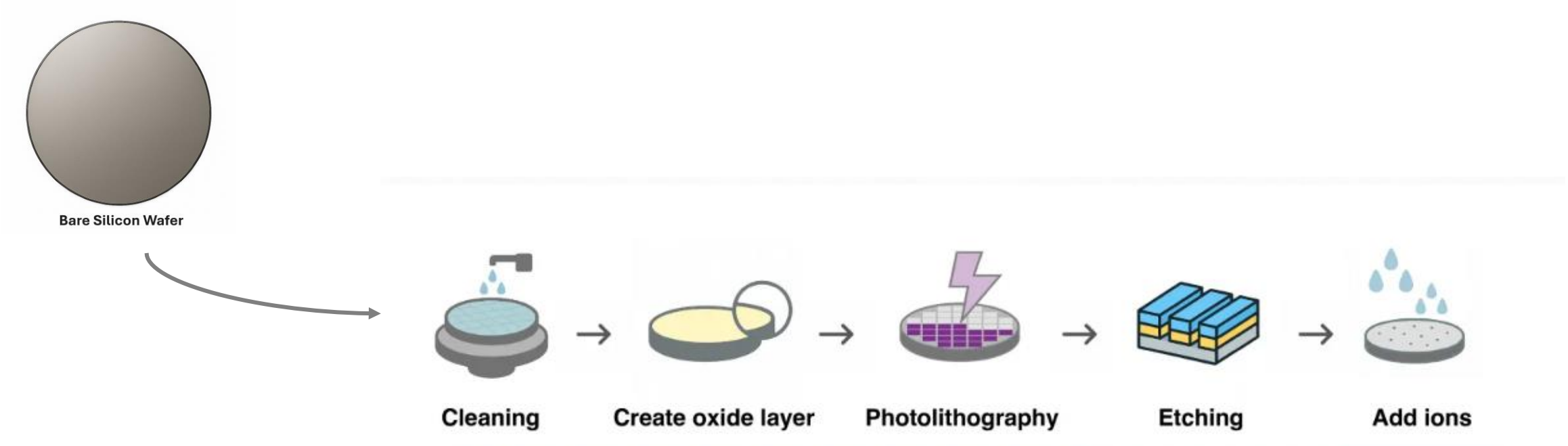
15 Dec 2025

Agenda for today

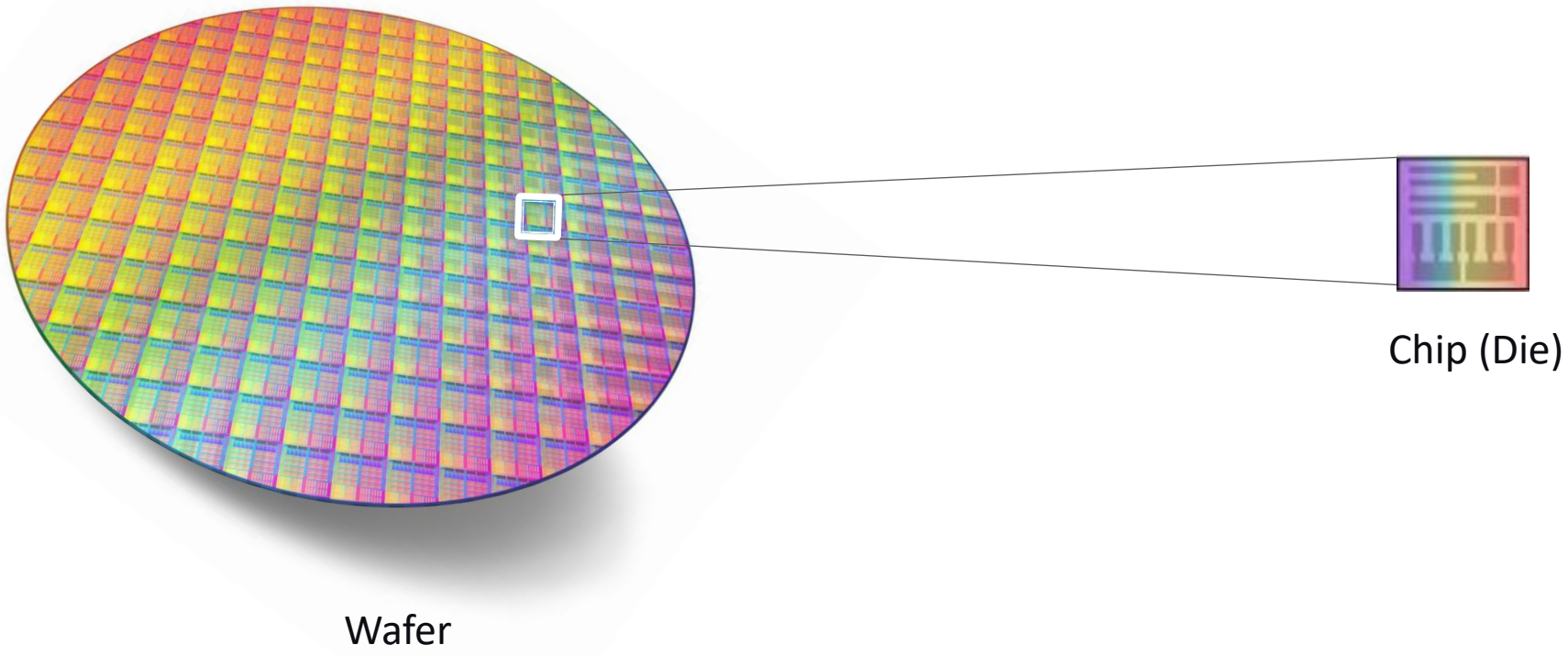
Time	Activity
8:00 AM	Problem Statement description (Milestone 1 – 3)
8:30 AM	Students to download input dataset and problem statement PDF
8:45 AM	Students start investigation and solve the problem
9:15 AM	Mentors assigned and will start checking in with you as needed
1:00 PM	Lunch
6:00 – 6:30 PM	Results of Day 1 will be announced.

Terminologies and concepts

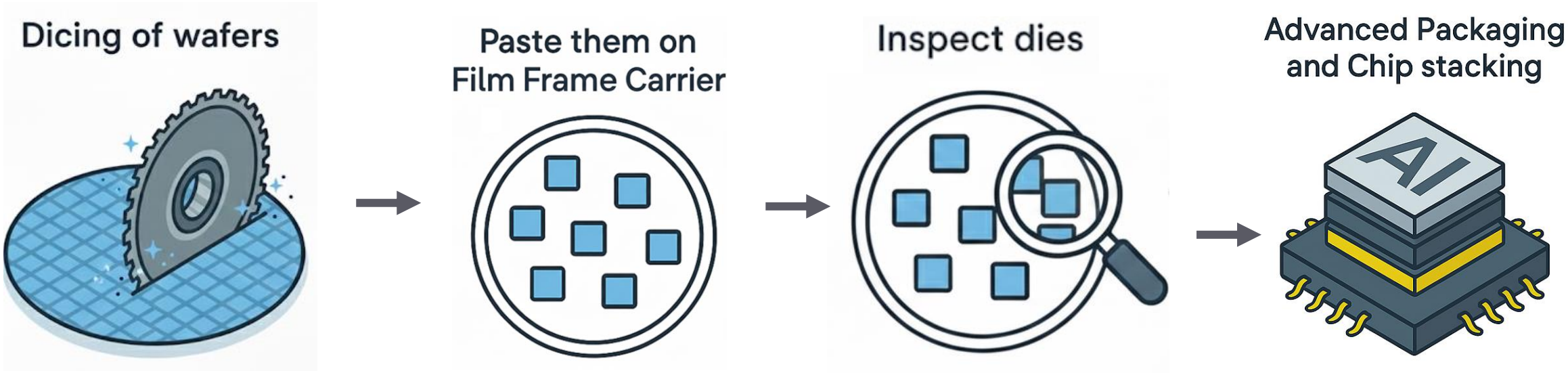
Chip Manufacturing Process



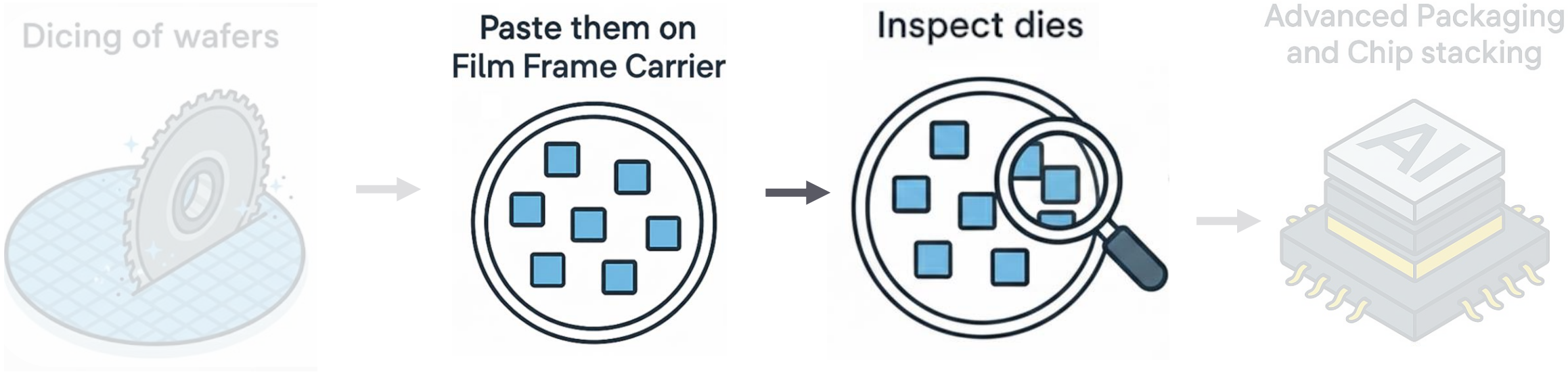
Wafer and Die



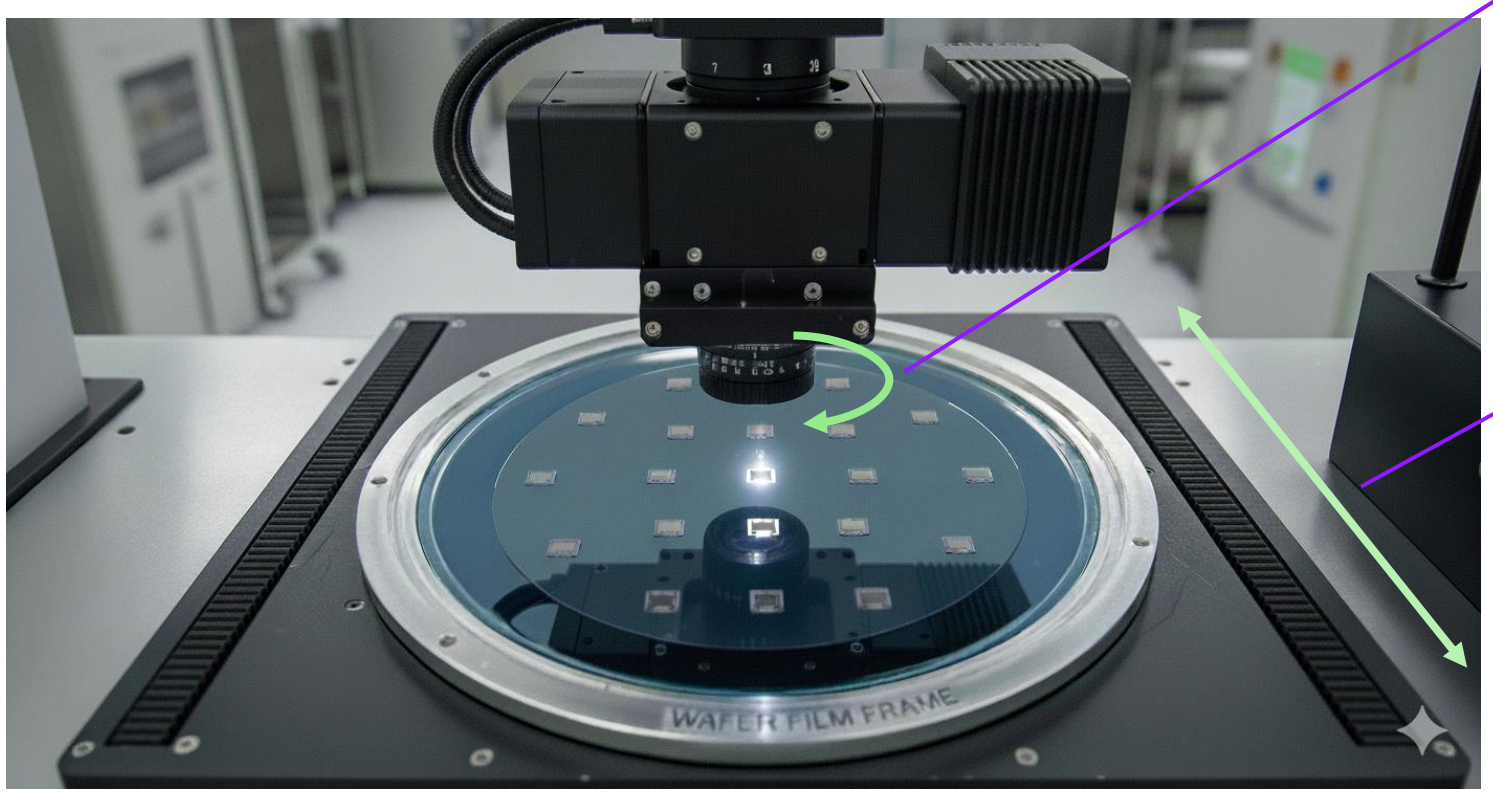
Advanced Packaging



Advanced Packaging



Inspection on Film Frame Carrier

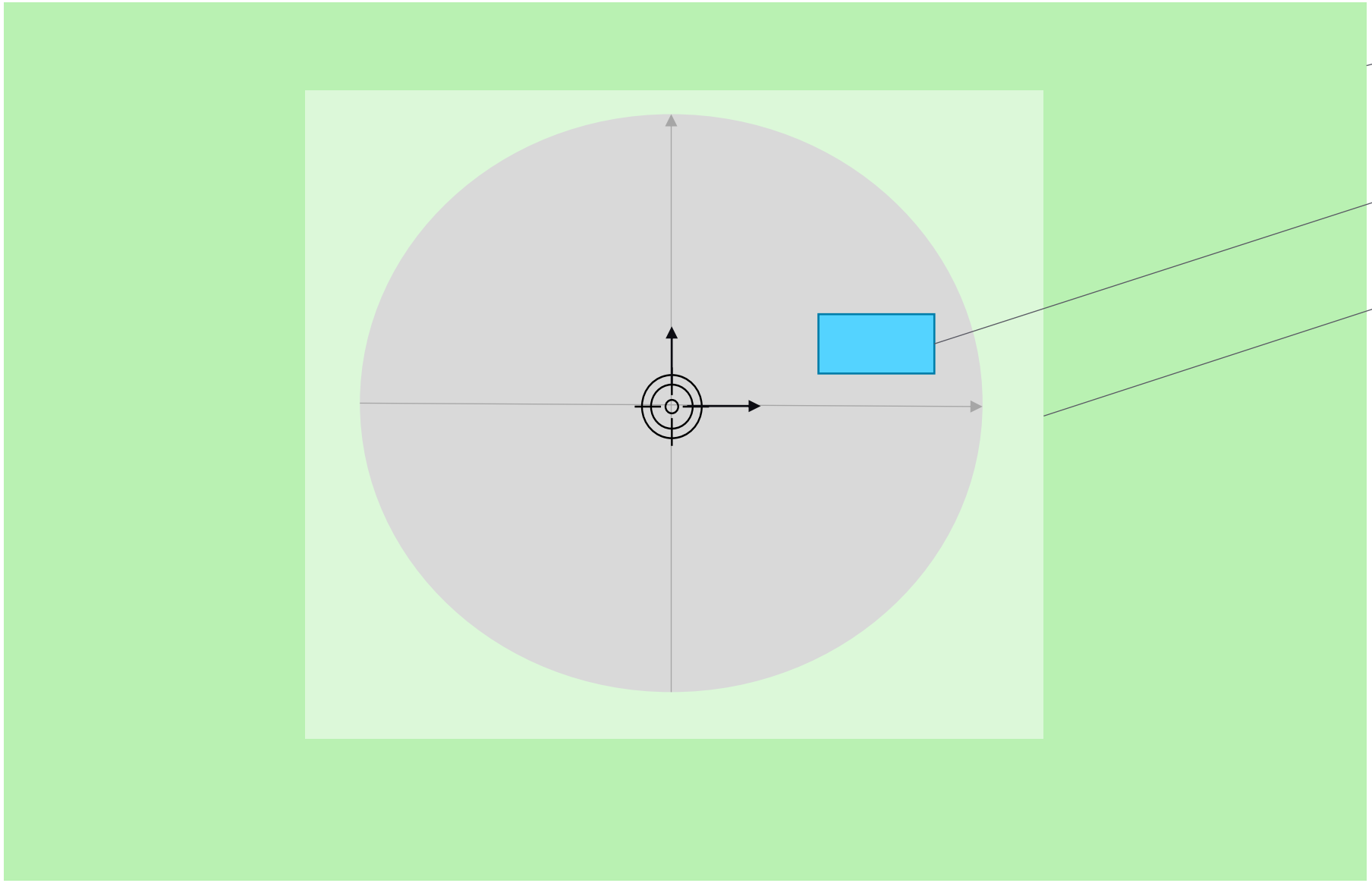


Rotation around its own axis

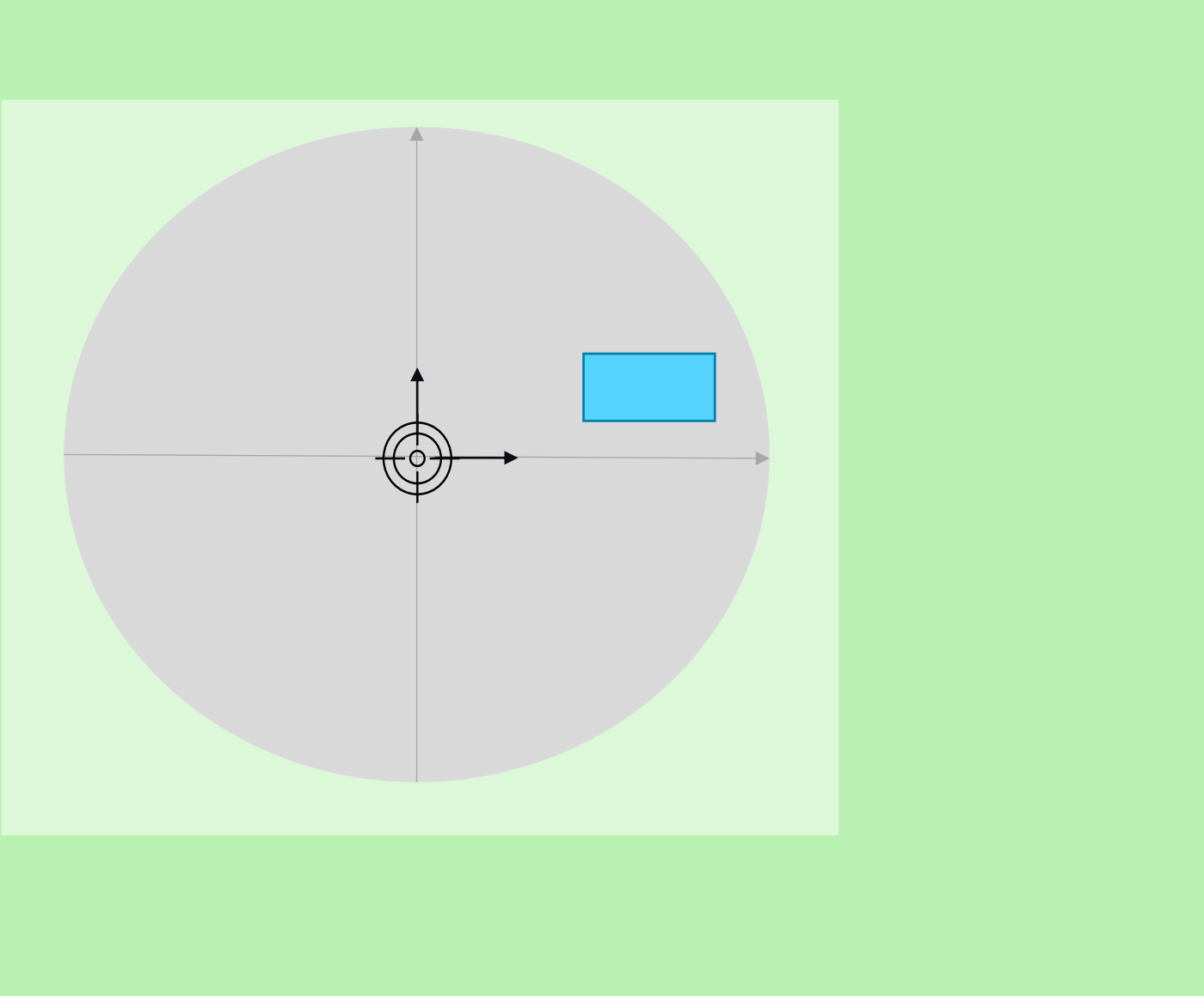
Y Stage Move

X Stage Move

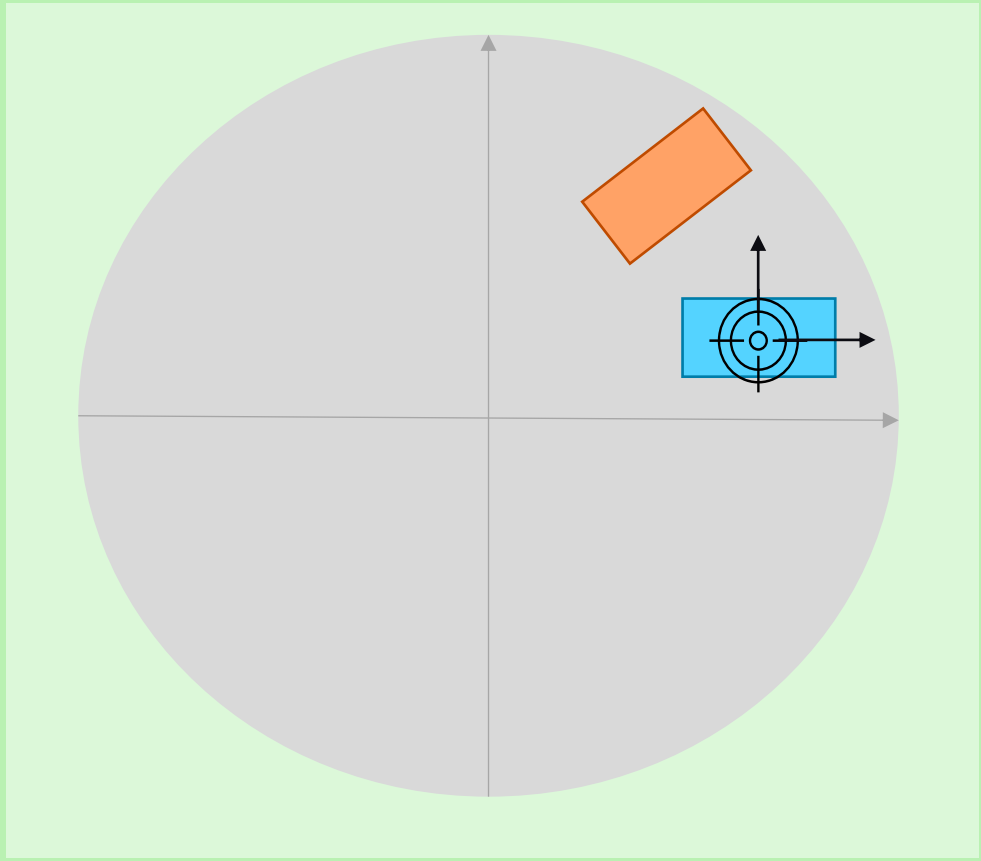
Stage Movement and Camera Rotation Explained



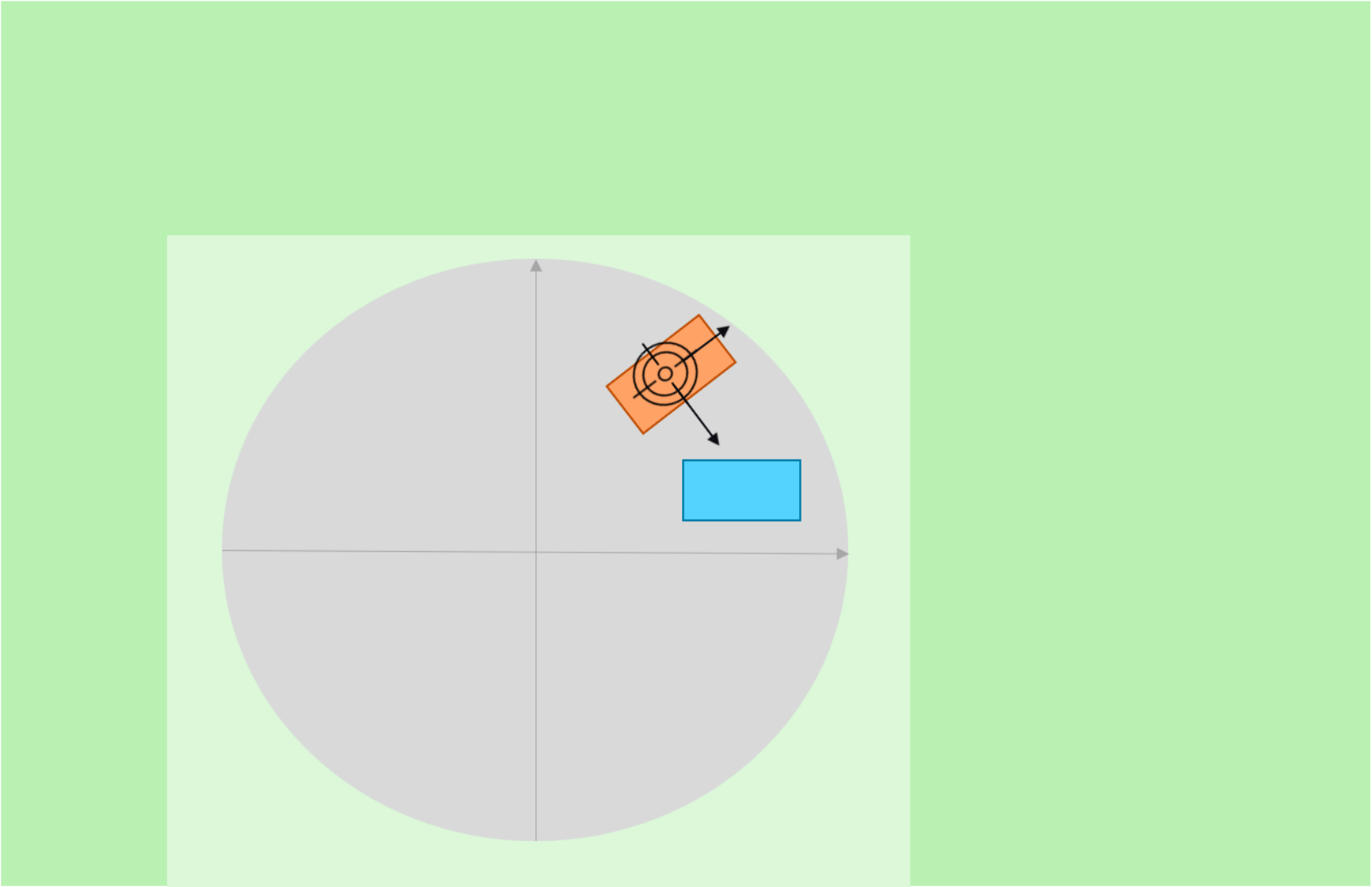
Stage Movement and Camera Rotation Explained



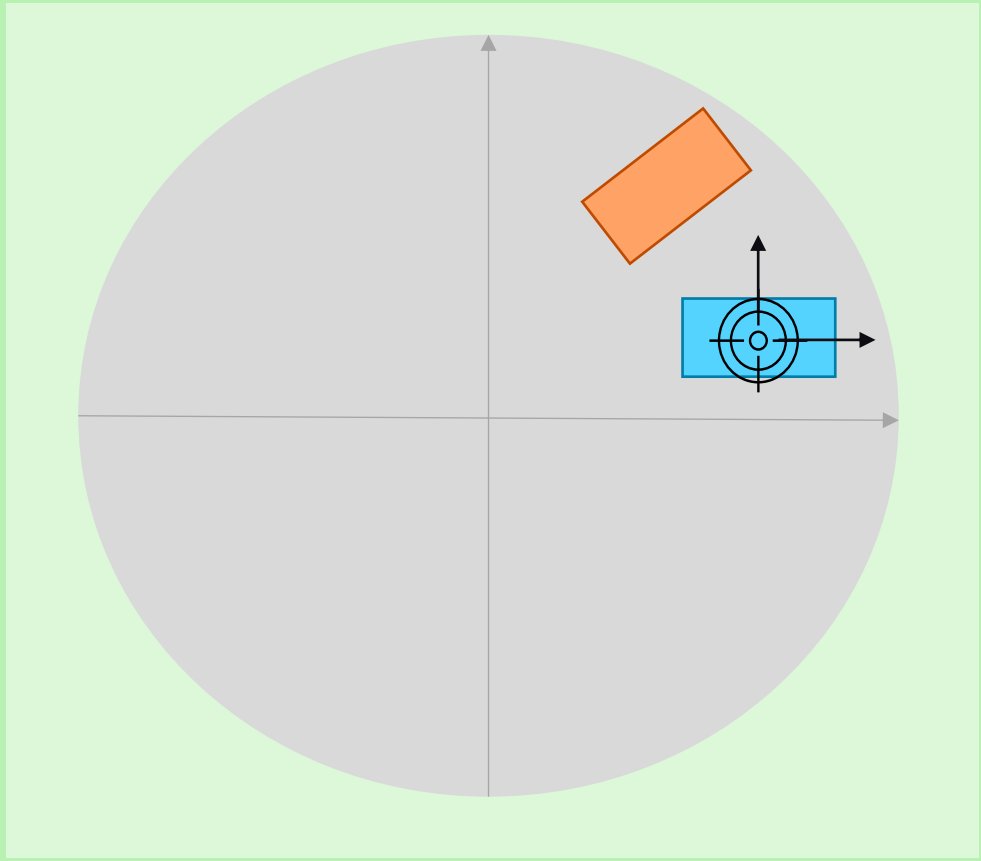
Stage Movement and Camera Rotation Explained



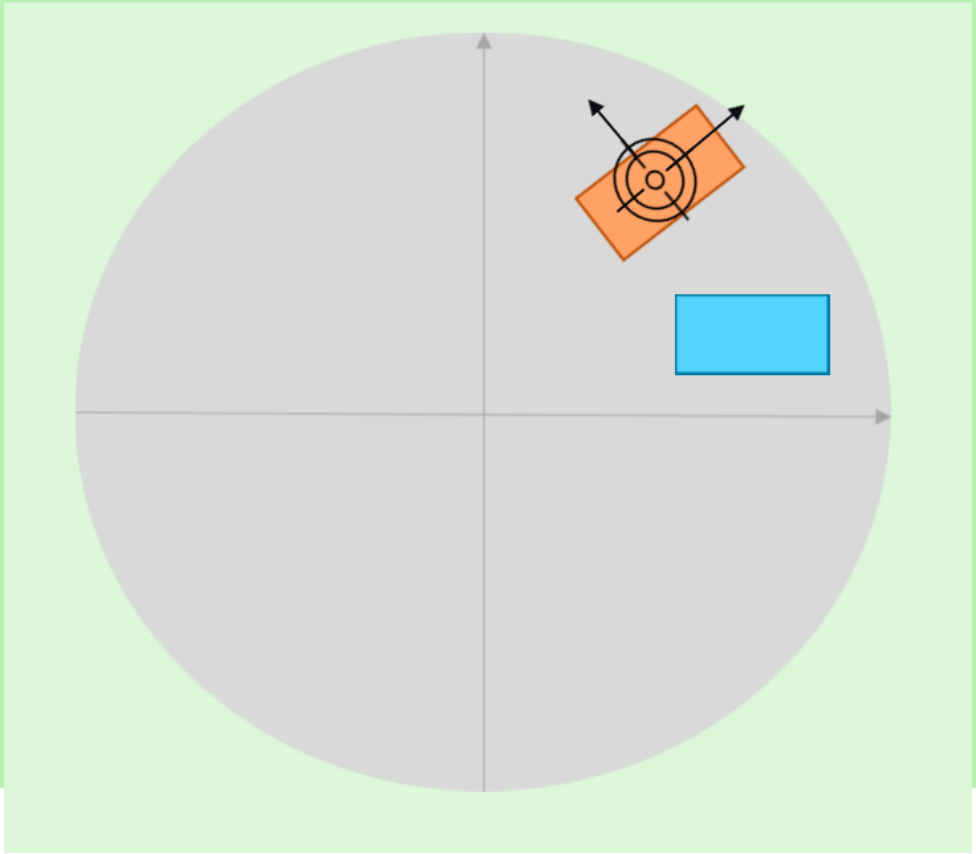
Stage Movement and Camera Rotation Explained



Stage Movement and Camera Rotation Explained



Stage Movement and Camera Rotation Explained

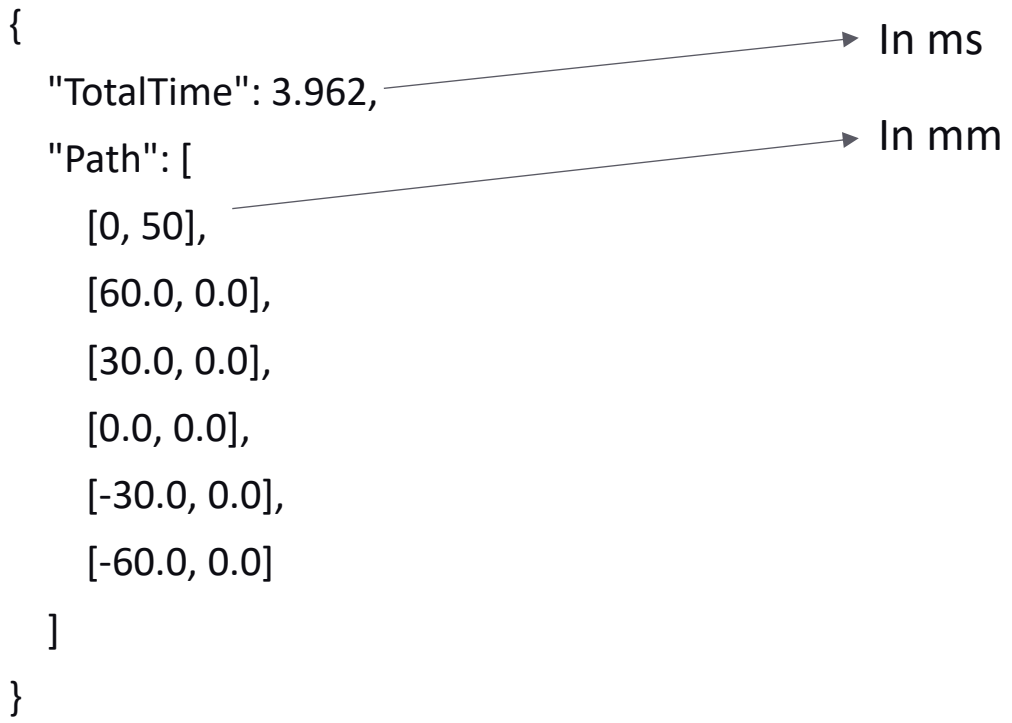


Problem Statement

Objective

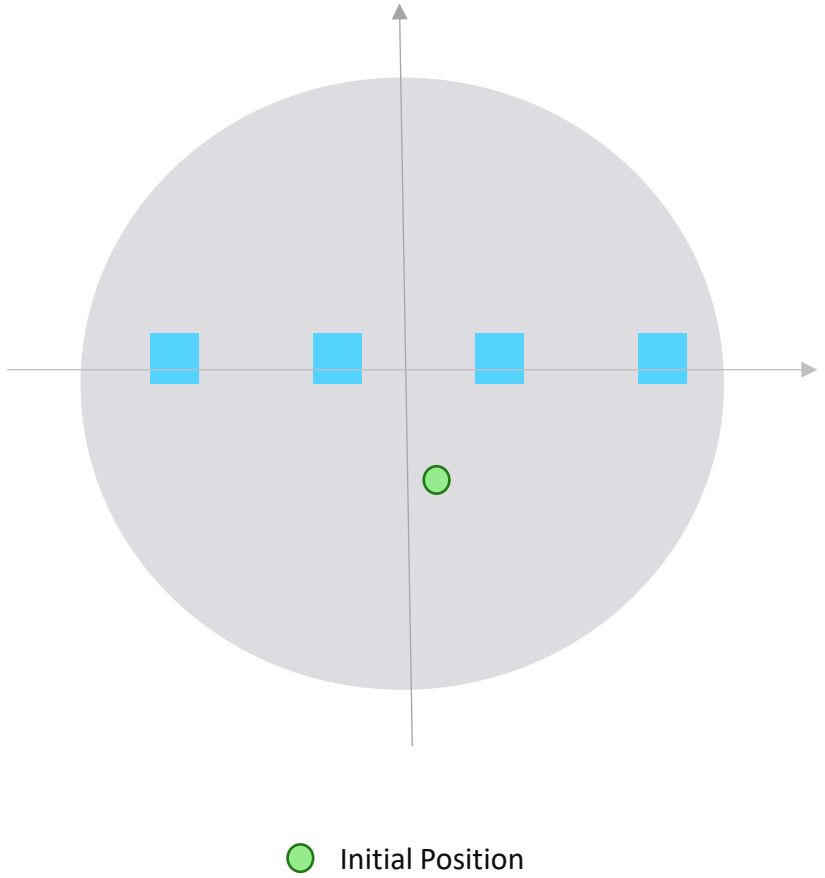
Given a list of dies, find the optimal path and time to inspect all the dies.

Output


{
"TotalTime": 3.962,
"Path": [
[0, 50],
[60.0, 0.0],
[30.0, 0.0],
[0.0, 0.0],
[-30.0, 0.0],
[-60.0, 0.0]
]
}
In ms
In mm

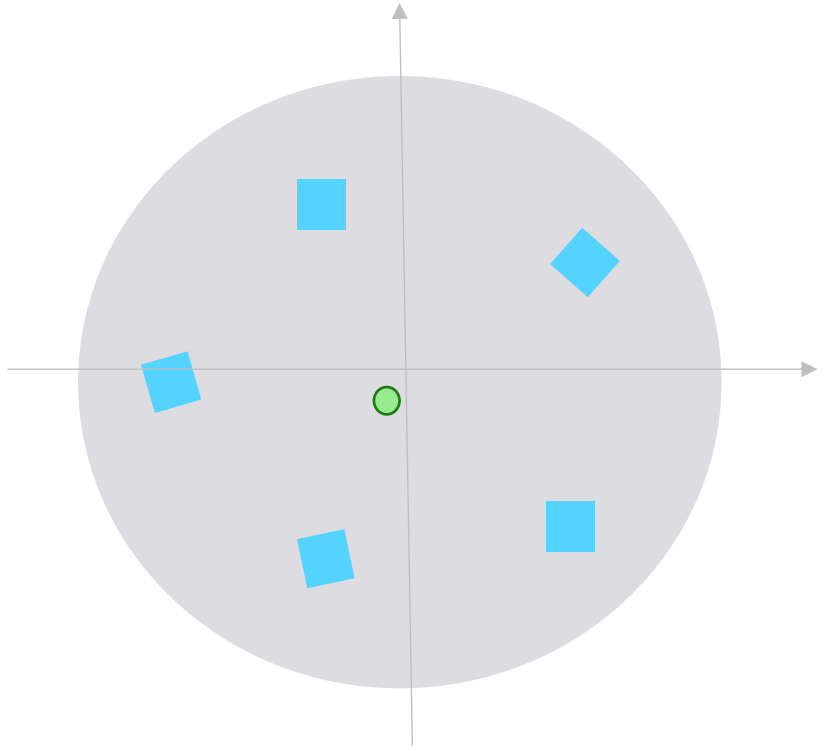
Milestone 1

- Input
  - Die Coordinates (mm)
  - Initial position (x, y) of stage (in mm)
  - Constant velocity (v) of stage movement (in mm/ms)



Milestone 2

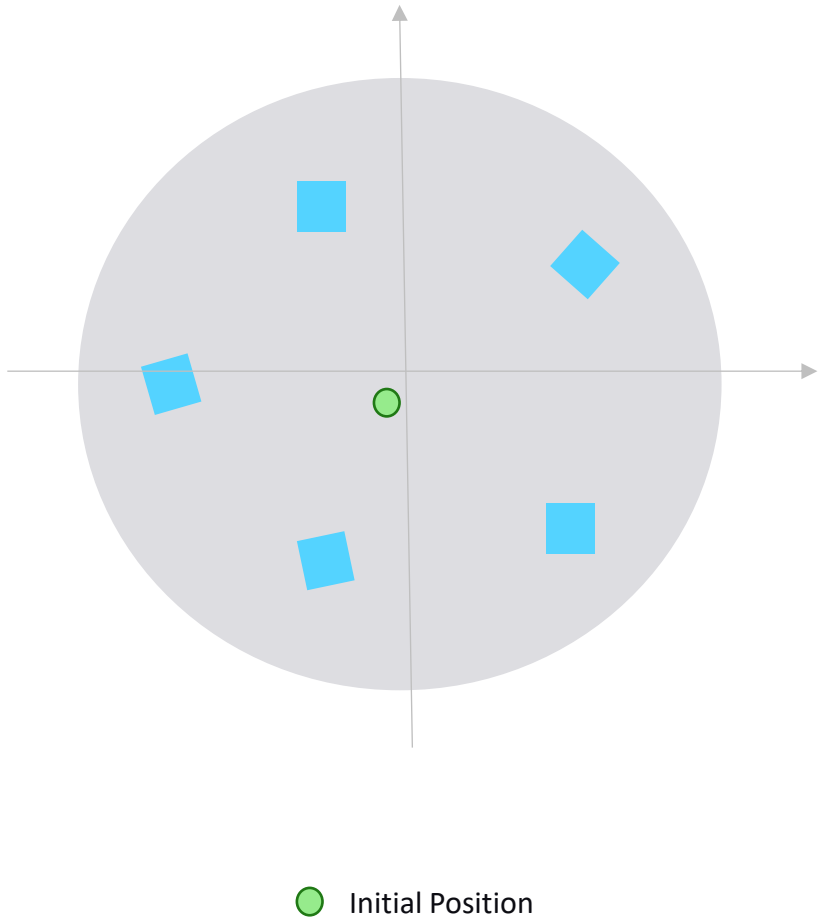
- Additional Input
  - Constant camera angular velocity (in deg/ms)



Initial Position

Milestone 3

- Additional Input
  - Maximum stage velocity (v_{max}) in mm/ms
  - Maximum stage acceleration (a_{max}) in mm/ms^2
  - Maximum camera angular velocity in deg/ms
  - Maximum camera angular acceleration in deg/ms^2
- Assumption
  - Consider the deceleration value to be equal to the given acceleration value (same magnitude, opposite direction).

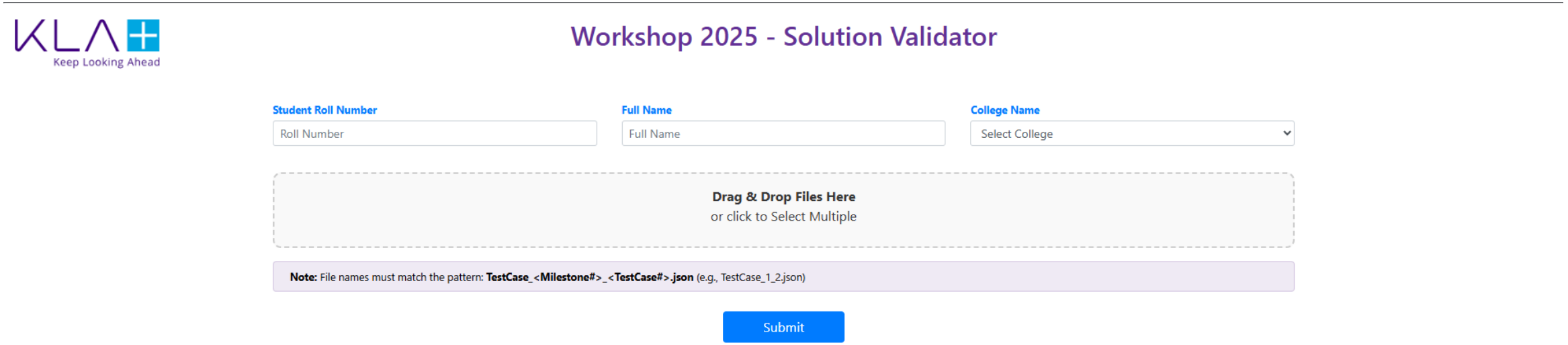


Guidelines/Instructions

- Problem Statement and Input testcases will be sent over email.
- Code Check in
  - Check in source code to your github in public repo every hour
  - Share the repo with klauniversityworkshophiring@gmail.com
- Usage of AI is allowed.
- Make sure you create single piece of code to run all milestones.
- Proper Data structures, class design, scalable solution, proper boundary condition check – These will be valued.

Solution Validator

- klasolutionvalidator2025.azurewebsites.net



Questions