Below are the SDLC activities that must be practically demonstrated in the development of their capstone project by the Science Grads.

1. **Requirements Gathering & Analysis**
   * Meet with stakeholders to collect and clarify project requirements and constraints.
   * There must be high level document created by the team
2. **System & Architecture Design**
   * Design the overall system architecture (frontend, backend, database, APIs, integrations).
   * Must have a design of sequence flows
3. **Database Design & Setup**
   * Model the database schema, set up the database, and plan for data relationships and security.
   * Specify the model.
4. **Frontend Development**
   * Build responsive user interfaces using frameworks like React
   * Light weight Presentation only Logic - No Business logic should be part of UI
5. **Backend Development**
   * Develop server-side logic, RESTful APIs, authentication, and business logic using Java Stack
   * Must be in compliance with REST standards.
   * All the business logic must be aligned with these APIs, demonstrate use of gateways, orchestrating APIs and workflows.
6. **Integration & API Development**
   * Connect frontend and backend, integrate third-party services, and ensure smooth data flow.
   * Stubbing and mocking if needed.
7. **Testing (Unit, Integration, End-to-End)**
   * Write and execute tests for frontend, backend, and APIs to ensure reliability and correctness.
   * JUnit tests, JaCoCo code coverage tests must be there
8. **Deployment & DevOps**
   * Using GitLab, committing, Merge Requests & Branch management
   * Set up CI/CD pipelines, deploy the application to cloud or on-premise servers, and manage environments.
   * Jenkins, EKS/Docker, Ansible etc
9. **Documentation**
   * Document code, APIs, setup instructions, and user guides for future maintenance and onboarding.
   * API Swagger document creation.
10. **User Acceptance Testing & Feedback Incorporation**
    * Conduct UAT sessions, gather feedback, fix bugs, and refine the application for final delivery.