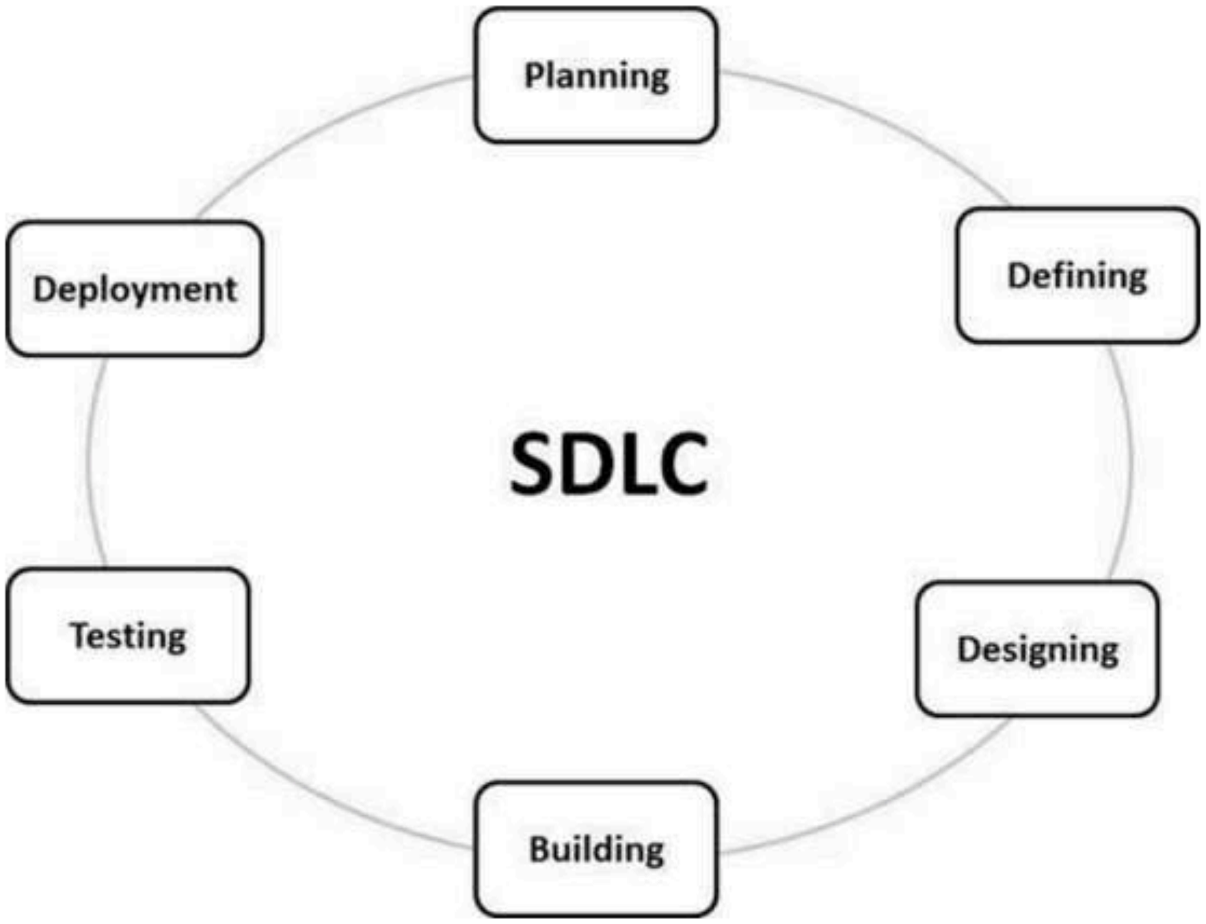
Software Development Life Cycle



Announcements

- Phase-0 graded
  - Make sure you are part of your (team) organization
  - We will make an EMPTY repo for you - and you import code to our repo
  - So no need to fork from 361
- Phase-I is online, we will discuss briefly today
  - Please read through the ”requirements”

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Announcements

- Clickers - we still have 4 students who are inactive

- **Office hour changes:**
  - THIS WEEK ONLY:

    Caius: Thu 3:00-4:00pm
    Nicholas: Wed 2:00-3:00pm
    Ayda: Fri 2:00-3:00pm
  - Through this entire term:

    Dr. Sarma: from Wed @11:00 AM to Tue @1:00 PM

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This week

- Software Development Lifecycle models
  - Agile – Scrum process
- Requirements – user story
- Tying it all together with Phase-I of your term project

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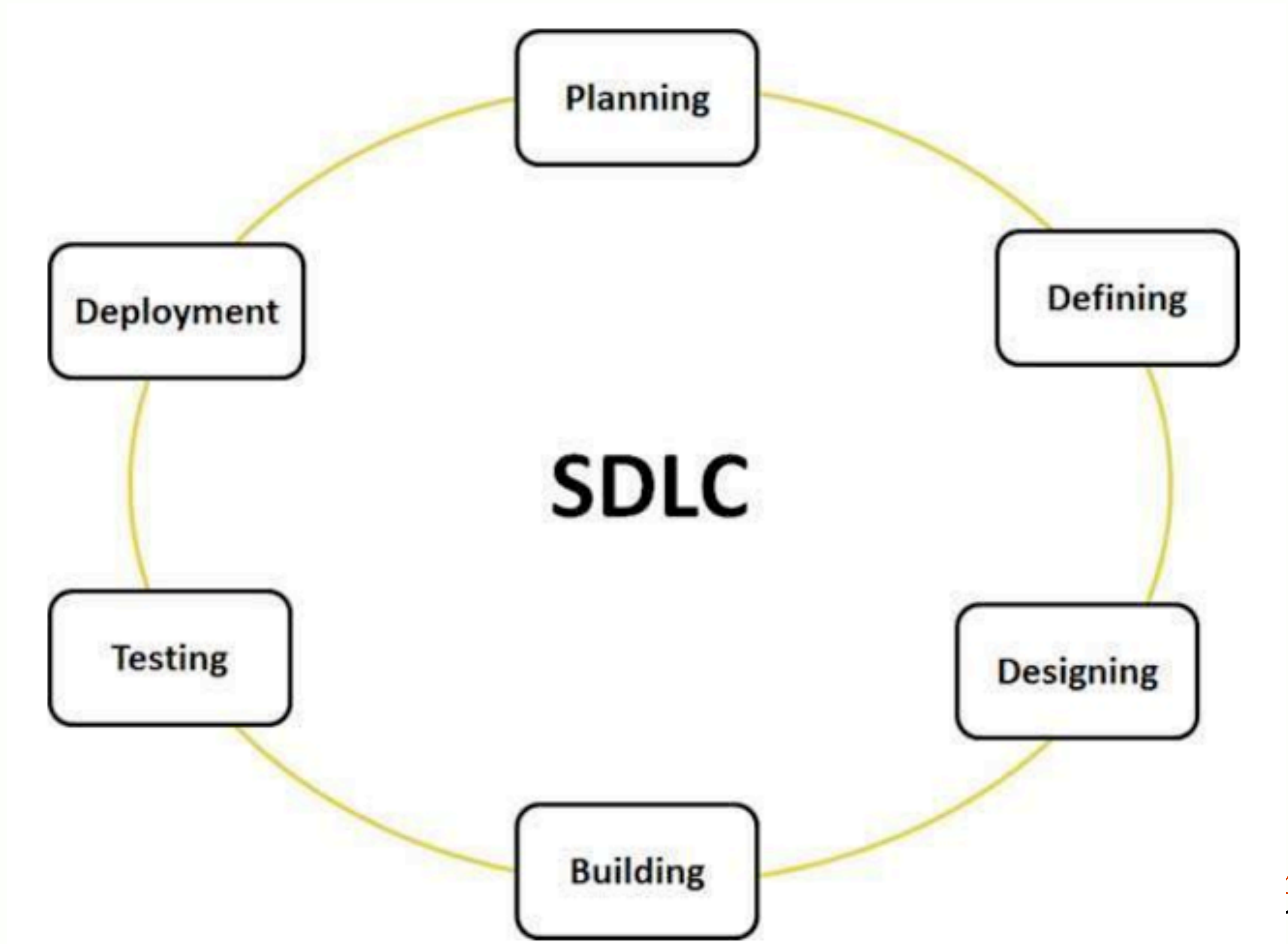
SDLC – Software Development Lifecycle



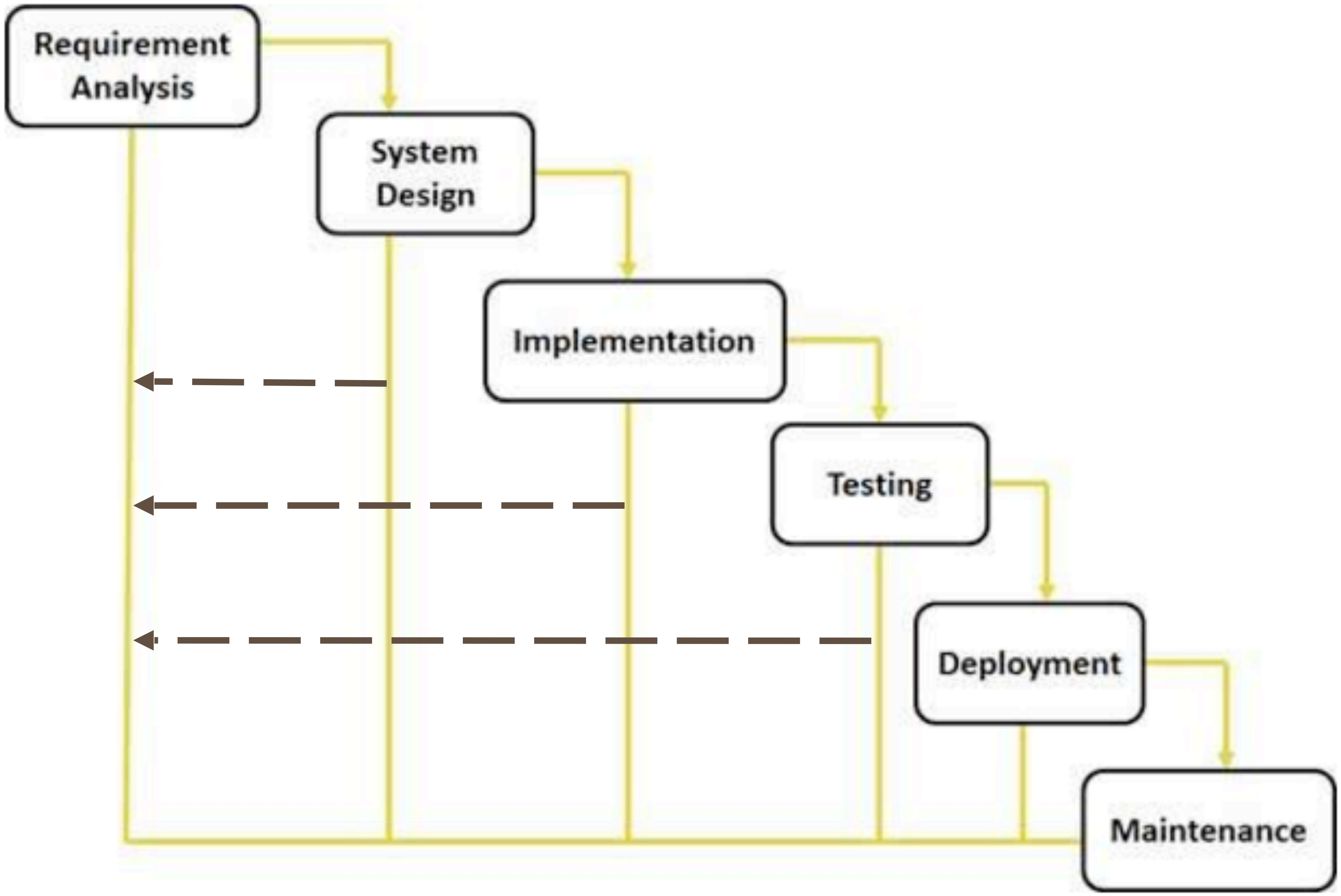
https://www.tutorialspoint.com/sdlc/sdlc_overview.htm

Big Bang Model

- Develop code
- Understand requirements as you go ahead

- Basically, no planning, defining, or designing

Waterfall


Requirement Analysis
System Design
Implementation
Testing
Deployment
Maintenance

e

Pro & cons

- Well documented requirements & documentation
- Easy to manage phases across teams

- Rigid phases
- No working s/w until late stage
- Not much reflection or revision
- Big Bang Integration at the end

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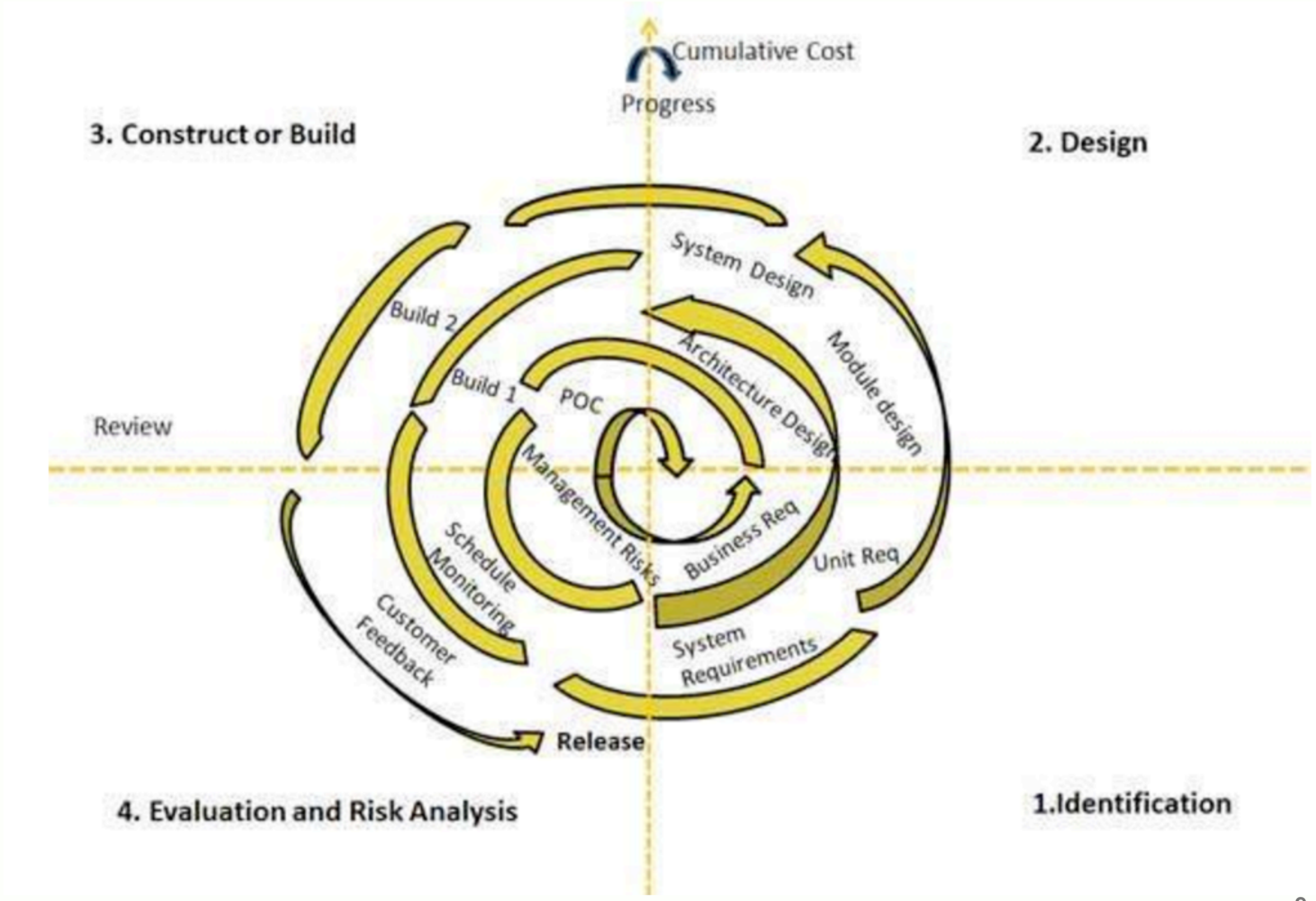
Spiral model



Pros & cons

- Used for medium – high risk projects
- Complex and unclear requirements that need evaluation
- Early involvement with system development & users

- Management & process is complex
- Large number of cycles require lots of documentation
- When is end of cycle not always clear

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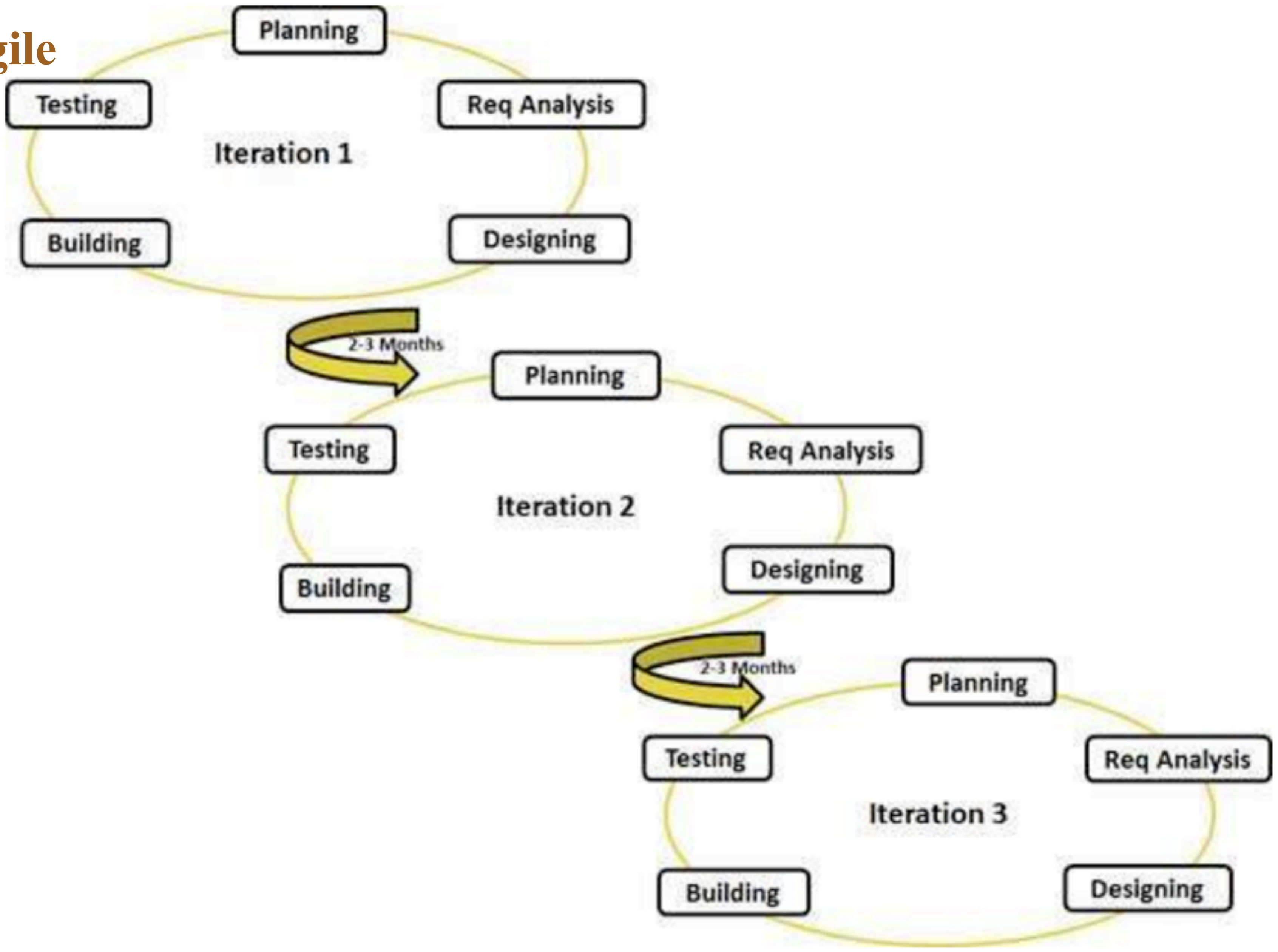
Agile


Planning
Req Analysis
Designing
Building
Testing
Iteration 1
2-3 Months
Planning
Req Analysis
Designing
Building
Testing
Iteration 2
2-3 Months
Planning
Req Analysis
Designing
Building
Testing
Iteration 3

Agile manifesto principles

1. Individuals and interactions
   - self organization, motivation, colocation, pair-programming
2. Working software
   - Communication between client and team
3. Customer collaboration
   - Continuous interactions -> embed in team
4. Responding to change

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Pros & cons

- Manage changing requirements
- Minimal planning or documentation
- Promotes team work & collaboration
- Quickly change directions

- Overall plan/ agile manager
- Cant handle complex dependencies
- Iterations determine scope of project
- Heavy reliance on personnel (minimal documentation, newcomer onboarding, customer interaction)

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Agile methods

- **Scrum**
- Kanban
- Xtreme Programming
- DSDM (Dynamic Software Development Method)
- Feature Driven Development (FDD)

http://www.guru99.com/agile-scrum-extreme-testing.html

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Scrum

- Cross-functional teams
- Sprints: 4 week iterations
  - Sprint planning
  - Sprint
  - Daily Scrum meeting
  - Sprint Retrospective meeting
- Other terms
  - Product backlog
  - (Sprint) burn-down chart

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https://www.scrumalliance.org/community/articles/2007/march/glossary-of-scrum-terms

When to choose a particular kind of process

Waterfall is often a good choice for *small* systems whose requirements can be *fully* understood before any design or coding.

Spiral is often a good choice for *larger* systems with *vague* requirements and many *alternatives* for designing and coding.

Agile is often a good choice for systems where you can rapidly create something very *small but useful*, and *then expand* from there.

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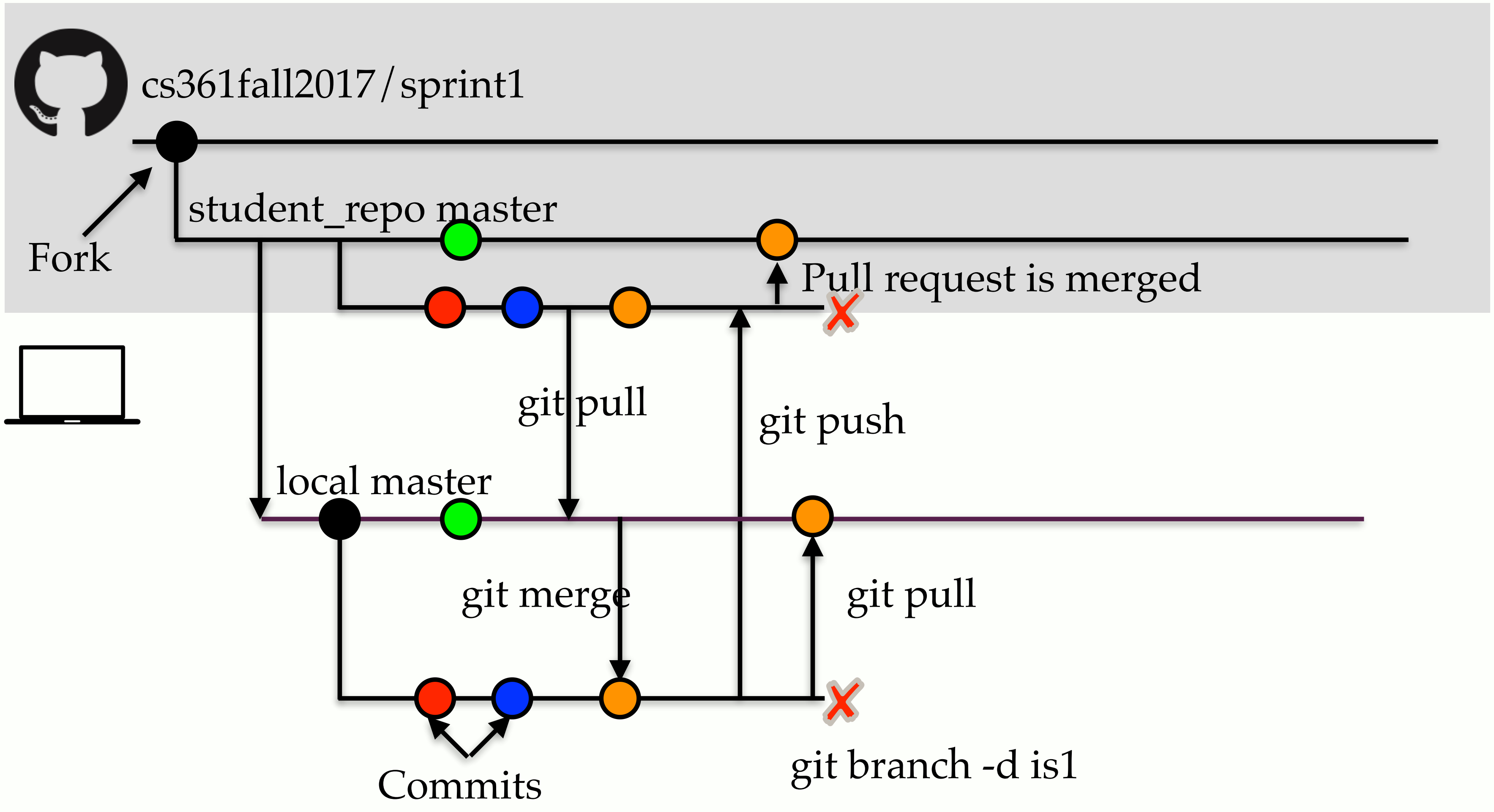
Participation Quiz

Draw the GitHub Flow that you will use for the project


cs361fall2017/sprint1
Fork
student_repo master
Pull request is merged
git pull
git push
local master
git merge
git pull
Commits
git branch -d is1