

Introduction		SDLC Models (cont)				SDLC Models (cont)		
Manual Testing	Automation	V-Model	-Test in all phases	ADV: - continuous testing -Usable -Doable	DIS: -if you do not test correctly;wrong product	Agile (Iteration Detail Sprints 1-2 weeks)	- Implementation/Developer Testing -QA/Acceptance Testing -(Deployment)	-won't outdate fast;adaptive -4 iterations
1. Takes more time	1. Takes less time	Iterative (small version of agile)	Repetition			-	Evaluation/Prioritization	
2. Cheaper if executing 1,2, or 3 times	2. Execution is faster			-Detailed Requirements				
3. Execute Manually First	3. Don't automate anything not linked or completed			-Design/Analysis				
4. Non-stable build	4. Executing more than 3 times							
SDLC Models		Spiral	Planning, Risk Analysis, Evaluation, Engineering	-unit testing -create a prototype of each design	-keeps iterating -takes more time - complicated to understand	Stages of SDLC (Ask for Access)		
Waterfall (for small project)	- Requirements Gathering -Designing - Implementation -Testing -Deployment -Maintenance					1. Requirement Gathering	-what does the client want -analyze, prototype - feasible? how much time?	
						2. Designing (Architecture; How it will look)	-reliable -estimate time,cost,resource analysis w/ technical challenges?	



Stages of SDLC (Ask for Access) (cont)

6. -enhancements
Maintenance -bug fixes
-new feature additions
-Acceptance Testing (alpha/beta)
-Alpha:done by testers; go to the customer's,install ,test it
-Beta: Live testing

Software Testing

- ☐ process of watching with the requirements
- ☐ check for correctness,completeness,and quality
- ☐ if it is missing something it is a bug
- ☐ 1)Validation 2)Verification
 - ☐ requirement doc
 - ☐ business doc
 - ☐ software
- ☐ meets requirements
- ☐ works as expected
- ☐ can be implemented with the same characteristics

STLC (Software Testing Life Cycle) (cont)

5. Environment Setup -software -server to deploy testing environment

6. Automation -automate TC automate 1st test the software execute later

7. Test Execution -execute tests

8. Report Defects -report defects -log defect against automation -tell m-report defects -log defect against automation manager of defects

9. Regression Test -defects fixed -what's fixed or not

10. Test Reports -create and submit

Principles of Software Testing (cont)

Principle 3 -Early Testing

Principle 4 -Defect clustering; categorize based on severity, highest priority,needs

Principle 5 -Pesticide Paradox - dependencies

Principle 6 -Testing is context dependent -log defects -what you're testing for

Principle 7 -Absence of errors-fallacy - chances of missing the errors

Software Development Life Cycle

- ☒ A process to develop quality software
- ☒ A process we follow to develop and deliver
- ☒ SDLC is a process used to design, develop, and test high quality software
- ☒ Continuous Process
- ☒ Meets or Exceeds customer's expectations
- ☒ Reaches completion within times and cost estimates
- ☒ Assures that we are
 - ☐ Meeting the requirements
 - ☐ Deliver on time
 - ☐ Should be quality

STLC (Software Testing Life Cycle)

1. Requirement -properly documented/updated - verification

2. Design -how to test -how will you decide what is going to be done

Test -what to test?

Strategy tools?framework? required resources

3. Test Planning -who will test -what you are going to test in each phase

4. Test Case Development -write TC

Bugs Can Be...

Defect	Incident	Inconsistency
Fault	Anomaly	Product Anomaly
Problem	Variance	Product Incidence
Error	Failure	Feature

Principles of Software Testing

Principle 1 -prove there are defects (presence of defects)

Principle 2 -100% testing (exhaustive is impossible)



Verification & Validation/QA/QC				Levels of Testing (cont)			Testing Techniques (Gray Box) (cont)			Testing Methodologies (cont)					
Verification	-is the requirement proper	-are we on the right track? -static documents	-audits	User Acceptance Testing	- Alpha:lab, what's in production	- Beta: Production (end user)	<ul style="list-style-type: none"> Advantages: Combined benefits, unbiased testing, intelligent test authority Disadvantages: Partial code coverage, Defect Identification 	Integration Testing	-if interface behavior sharing btw the working as spec	Security Testing	-to ensure protection unauthorized so	Service level Testing	- Function al testing, Perform ance Testing, Security Testing	Component nsive state of qu	
Validation	- building the right thing	-dynamic	-whether we have built it right -system testing	Testing Techniques (Black Box)			Testing Methodologies								
Quality Assurance	- process oriented -assure quality	-STLC implement process	- preventive activities	<ul style="list-style-type: none"> Don't have to understand/touch code No access to code Check functional and non-functional Advantages: efficient, unbiased, easy to execute, non intrusive Disadvantages: Localized testing, blind coverage, inefficient, test authority(system testing) 	Governance Testing			-services conform to standards, policies, and objectives	Process Testing			-services are operating collectively as specified	- process being followed or not?		
Quality Control	- Product-oriented	- corrective process -test cases	-one product corrective process	Testing Techniques (White Box)			Unit Testing/Service-Component Level			-test the code - functionality	System Testing			-business requirements defined and met acceptance criteria	-entire system works end-to-end
Levels of Testing				Testing Techniques (White Box)			Testing Techniques (Gray Box)								
Unit Testing	- check code	-lines of code	-# of TC	<ul style="list-style-type: none"> understand designs, programming language, unit test cases (execute and develop) Advantages: effective, early defect identifying, reveal hidden code flaws, full code pathway capable Disadvantages: Difficult to scale, cultural stress, highly intrusive, difficult to maintain 	Mixture of black and white			Test black box, partial access, can analyze their code, half rights							
Integration Testing	-all the pieces fit when integrated														
System Testing	- Functionality	-end-to-end testing	-performance, accessibility, compatibility												

