SOFTWARE ENGINEERING CS 487
Participation 1

Name: Anirudha Kapileshwari
Email: akapileshwari@hawk.iit.edu

1)Why would perfect proactive QA make reactive testing unnecessary? and why don't organizations simply do that?

=> Perfect Proactive QA means analyzing requirements thoroughly, implementing best practices and standards, code review, continuous improvement approach, etc.

And

Reactive Testing means identifying problems after development, checking functionality through testing, gathering user feedback for improvement, etc.

So
Perfect proactive QA aims to solve any problem before it occurs which makes the reactive testing unnecessary which is an ideal scenario. As both departments are handled by humans there are some challenges like system complexity, changing requirements, human factors, etc which make the organization have both proactive QA and reactive testing which is called a balanced approach.

Eg -> perfect Proactive UI QA -> ensures the design is user-friendly, standard, cross-browser compatibility, etc

However the real-world problem from the user may lead to errors, so for this reactive UI testing is required.

2) How much reactive QA is necessary to prove that the proactive QA was perfect?

=> Reactive QA identifies and addresses issues and defects in a product after it has been developed. Proactive QA prevents issues and defects from occurring in the first place. They are active throughout the software development cycle.

Theoretically, if perfect proactive QA is assumed the requirement for reactive QA will be minimal or not required at all as they would prevent all the issues and errors throughout the software development cycle. But practically it is impossible to prove the perfect proactive QA.

3) Describe the proactive and reactive elements of airport security and compare them to SW Eng QA.

=> Proactive Elements

	Airport Security	SW Eng QA
Risk Assumptions	Check for possible problems regularly	Identify and deal with potential issues
Training	Train staff for any threats	Learning for developers and testers

Technological Advancement	Using advance Technology	Adapting new tools for better testing
Security Infrastructure	Cameras for safety	Tools for early defect section

Reactive Elements

	Airport Security	SW Eng QA
Random Checking	Surprise check to find issues	Random testing to find errors
Investigation	Studying incidents to find the problem	Analysing testing results and fixing defects
Screening processes	Checking people and bags	Testing to find a defect
Response	Quick action to problem	Fixing the bus after testing

4) How could an organization quantify the benefit of QA (both proactive and reactive)?

=>

	Proactive QA	Reactive QA
Testing	A high percentage of the requirement	Comprehensive coverage
Customer satisfaction	High Satisfaction	High Satisfaction
Bug fix	Long time required	Short time required
Resource Utilisation	Efficient use of resources	Efficient use of resources
Defect and errors	Lower error identified during development	Lower error post-development
Word load	More comparatively	Depends upon the complexity of the SW