

Software Testing

Testing Basics



Software Testing Questions



- **Who performs testing?**
 - Developers? End users? Third party groups?
- **What are you testing?**
 - Refine: What attributes are you testing?
 - Examples: Correctness? Efficiency? Flexibility?



Software Testing Questions



- **When do you perform testing?**
 - Throughout development cycle? At end?
- **Where do you perform testing?**
 - Refine: What level are you testing?
 - Examples: Individual components? Entire system?



Software Testing Questions



- **Why are you performing testing?**
 - Refine: What are the objectives?
 - Examples: Validation? Verification?
- **How do you perform testing?**
 - Methodology? Automated? Toolkit?



Who performs testing?

- **Developers**

- Allows immediate fixes
- Lowest cost?
- Too close to code?

- **End Users**

- Realistic usage
- Limited to functionality

- **Third Party Groups**

- No bias
- Can examine code
- Can test functionality
- Less familiar with code
- Expensive



What attributes are you testing?

- **Operation**

- Correctness
- Reliability
- Efficiency
- Integrity
- Usability
- Security

- **Revision**

- Maintainability
- Testability
- Flexibility

- **Transition**

- Portability
- Reusability
- Interoperability

Quality Attributes



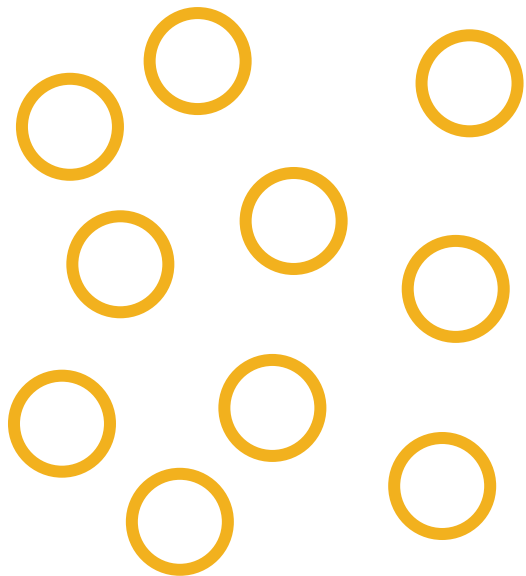
When do you perform testing?

- **Before code development**
 - Create tests before code, incrementally develop to pass tests
- **Throughout the development cycle**
 - Continuous, test after each phase
- **End of development cycle**
 - After all functionality developed, before reaching customer

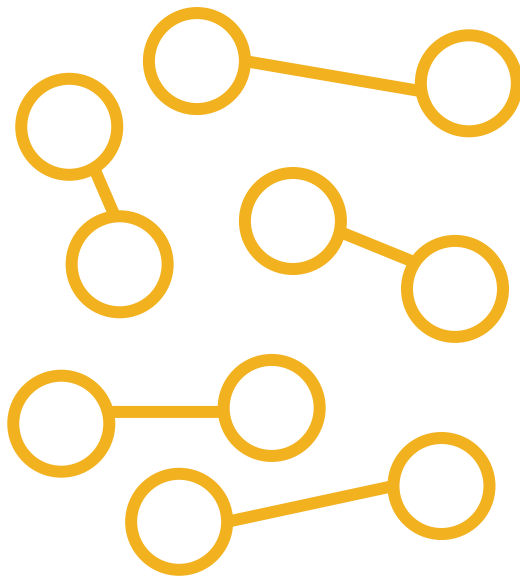


What level are you testing?

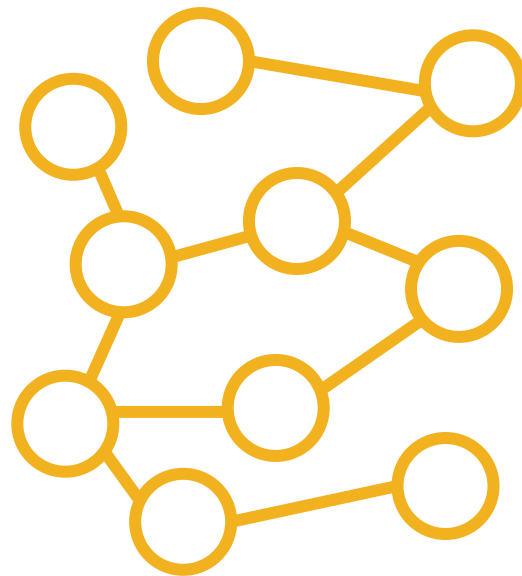
Unit Testing



Integration Testing



System Testing



Why are you testing?

- **Verification**

- Have we built the system right?

- **Validation**

- Have we built the right system?

- **Attributes**

- Prioritize specific quality attributes



How do you perform testing?

- **Who** (i.e. developers, users, third party) is doing the testing?
- **What** quality attributes are you testing?
- **When** (in development cycle) are you testing?
- **Where**/what level (i.e. unit, integration, system) are you testing?
- **Why** are you testing (i.e. verification or validation)?
- **Which** testing approach will you take?





CHANGE THE WORLD FROM HERE