Unit 3 Notes

**Learning Objectives**

* Apply combinatorial test coverage to assess test quality
* Apply design of experiments to develop tests
* Understand mutation testing
* Understand fuzz testing
* Define metamorphic testing
* Apply defect-based testing techniques
* Describe the role of exploratory testing

Combinatorial Testing Techniques

Combinatorial Coverage as an Aspect of Test Quality

* See slides

Design of Experiments

* See slides

Design of Experiments: Problem Example \*\*

A picture containing text, whiteboard

Description automatically generated

Combinatorial Testing Techniques Problem Example

* Combinatorial coverage looks at parameter values being individually tested.
  + False. Combinatorial coverage looks at how combinations of parameter values are tested together.
* Graphical user interface, text, application, email

  Description automatically generated
* What is the goal of design of experiments?
  + Minimize the number of tests we need to run. We are testing pairs of values for each input to minimize the number of tests.
* True or False. Design of experiments pairwise combination involves systematically testing all combinations of inputs.
  + False. Only pairs of values for each input are tested together, not all combinations of values of inputs.
* Given 3 inputs: P1 with values V1 and V2; P2 with values V3, V4, and V5 and P3 with values V6 and V7, what are the correct tests for a pairwise combination design of experiments?
  + Table

    Description automatically generated

Using Combinatorial Testing to Reduce Software Rework: Review of Reading

Mutation Testing

Fuzz Testing

Metamorphic Testing

Defect Based Testing

Exploratory Testing