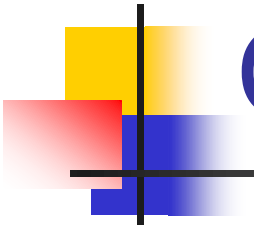
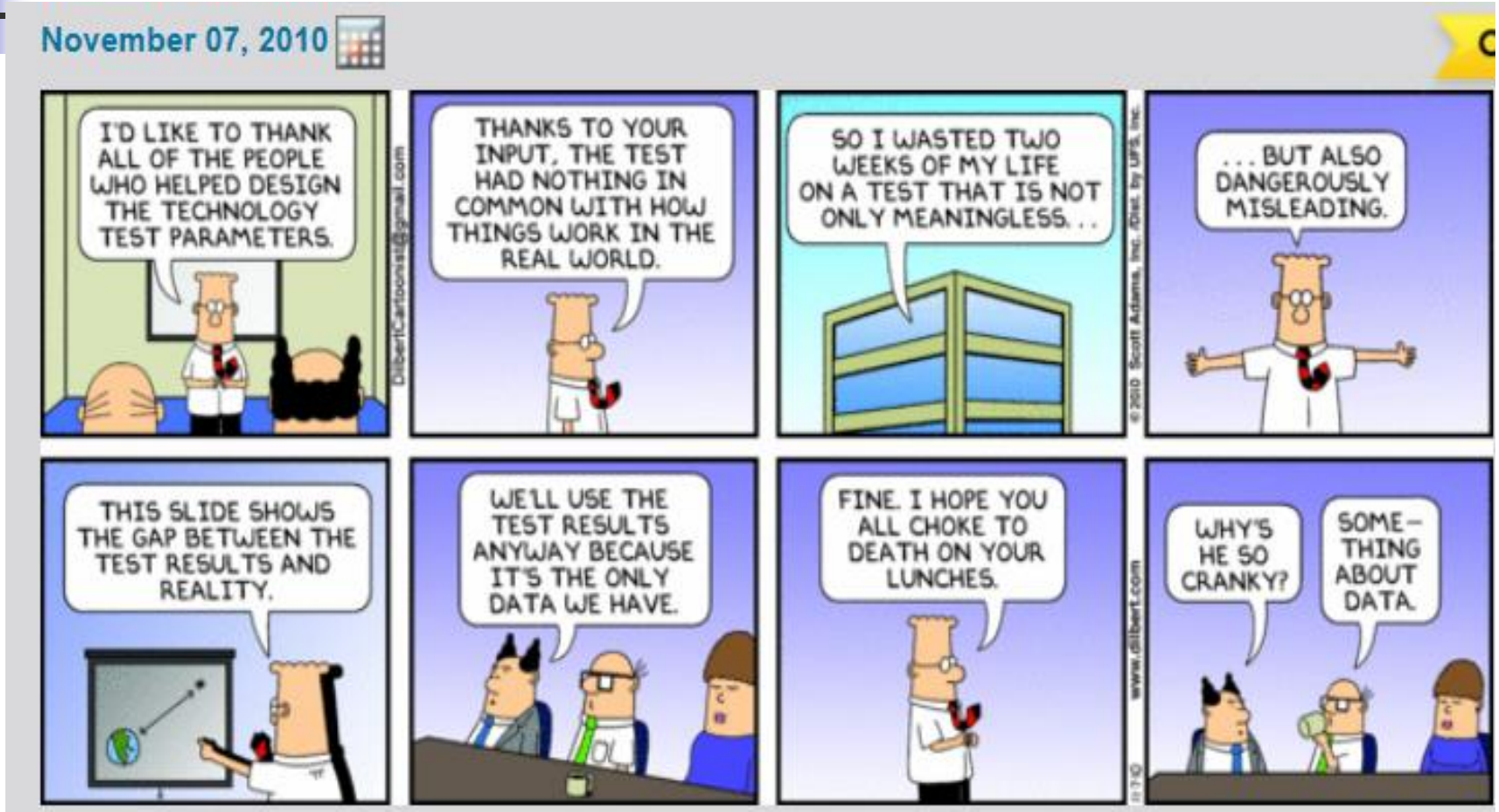


CSIT 415 – Test Plan

Building the Test Plan


November 07, 2010
I'D LIKE TO THANK ALL OF THE PEOPLE WHO HELPED DESIGN THE TECHNOLOGY TEST PARAMETERS.
THANKS TO YOUR INPUT, THE TEST HAD NOTHING IN COMMON WITH HOW THINGS WORK IN THE REAL WORLD.
SO I WASTED TWO WEEKS OF MY LIFE ON A TEST THAT IS NOT ONLY MEANINGLESS...
...BUT ALSO DANGEROUSLY MISLEADING.
THIS SLIDE SHOWS THE GAP BETWEEN THE TEST RESULTS AND REALITY.
WE'LL USE THE TEST RESULTS ANYWAY BECAUSE IT'S THE ONLY DATA WE HAVE.
FINE. I HOPE YOU ALL CHOKE TO DEATH ON YOUR LUNCHES.
WHY'S HE SO CRANKY?
SOME-THING ABOUT DATA.
DilbertCartoonist@gmail.com
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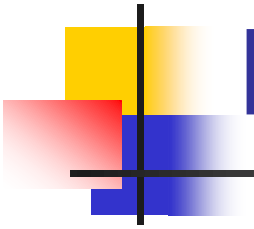
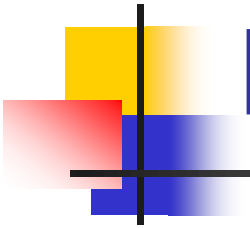


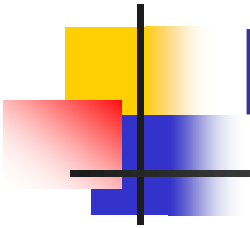
Building the Test Plan

- Development of an effective test plan involves four subtasks:
- Subtask 1: Set Test Objectives
  - Objectives of conducting testing will have been agreed on - strategic in nature
  - Objectives must be measurable, and the means of measuring defined
  - Objectives must be prioritized



Building the Test Plan

- Testing Objectives
  - Should restate the project objectives form the project plan
  - If no clearly defined objectives exists for the project plan, the testers must develop their own



Building the Test Plan

- The tester can:
  - Set objectives to minimize project risks
  - Brainstorm to identify project objectives
  - Relate objectives to the testing policy, if established
- About 10 or fewer objectives … Too many scatters testers' focus
  - Example:

Test Objectives Using Work Paper 1

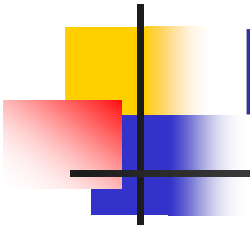
- Work Paper 1 (next slide) is designed for documenting test objectives. To complete:
- Itemize the objectives so they can be referred to by a number
- Write test objectives in a measurable statement ..
- Assign a priority to the objectives as follows
  - **High**:
  - **Average**:
  - **Low:**

Work Paper 1: Test Objective

Field Requirements

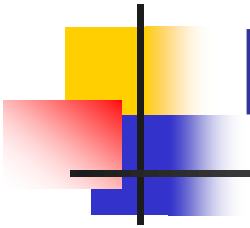
Field	Instructions For Entering Data
Number	A number that uniquely identifies each test objectives
Test Objective	A specific test objective that the testers are responsible for accomplishing during their testing effort
Test Priority	Indicate whether this objective is of high, medium, or low priority. One-third of the test objectives should fall within each of the three categories
Completion Criteria	Define how the testers will know whether a specific test objective has been correctly completed

Number	Test Objective	Test Priority	Completion Criteria



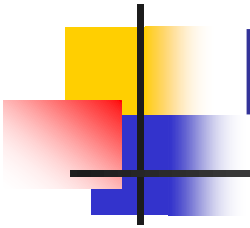
Building the Test Plan

- Define completion criteria for each objective.
  - State quantitatively how the testers will determine whether the objective has been accomplished
  - The more specific the criteria, the easier it will be for the testers to follow through



Building the Test Plan

- Work Paper 1 provides general objectives for a project
- This example shows how the form is to be used
  - In practice, there would perhaps be several objs of this type

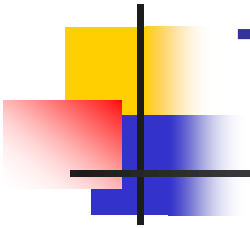


Building the Test Plan

- Subtask 2: Develop Test Matrix
  - The test matrix is the key component of the test plan
    - One side lists what is to be tested
    - On the other, it indicates which test is to be performed, or "how" software will be tested
  - Note:
    - One test may test more than one module
    - The test matrix is also a test "proof"

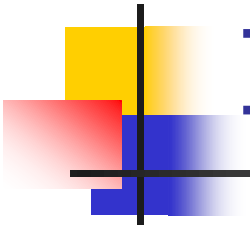
Test Matrix Example

Software Function	Test Deck Transaction	Test Parallel Test	Code Inspection
FICA Calculation	√		√
Gross Pay	√		√
Tax Deduction	√		√
General Ledger Charges		√	√



Test Matrix Example

- Shows four function in the payroll system
  - Three test to validate the functions
  - Batch test used since payroll is a batch system
  - Batch test data used with various dates
  - Parallel test is run when posting to the general ledger
  - All changes are verified through code inspection



Individual Software Module(s)

- Using Work Paper 2:
- The Work Paper
  - Lists software modules to be tested
  - Contains the name of the module
  - Contains a brief description of the module
  - Contains the criteria that will be used to sequentially identify the modules ….

Work Paper 2

Work Paper 2: Software Module

Field Requirements

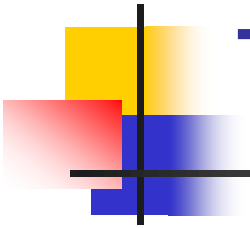
Field	Instructions for Entering Data
Software Project	The name or number that uniquely identifies the project or system that will be tested for compliance
Number	A sequential number used to uniquely identify a software module
Software Module Name	A name or number to uniquely identify the software module that will be tested
Description	A brief statement of the processing performed by this software module
Evaluation Criteria	Factors that will enable the tester to know whether the results of testing are correct and complete

Software Project: _____

Number	Software Module Name	Description	Evaluation Criteria

A completed Test Document

Software Project: Payroll Application Name of Test: Validate Input Test N0. 1
Test Objective Exercise data validation routines.
Test Input Prepare the following types of input data for each input field . Valid data . Invalid data . Range of codes . Validation of legitimate values and tables
Test Procedures Create input transactions that contain the conditions described in test input. Run the entire test deck until all conditions are correctly processed
Test Output Reject all invalid conditions and accept all valid conditions
Test Controls Run the entire test run each time the test is conducted. Rerun the test until all specified output criteria have been achieved
Software or Structure Attribute Tested The data validation function



Test Plan

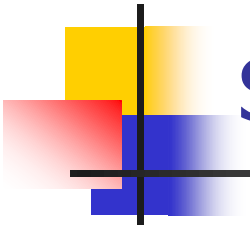
- The test document is for a hypothetical test of data validation routine
- Although all details (of the routine) are not yet known…Why not?
  - The data validation can be prepared

Example of a Test Script

- Test script for the data validation function of an audit-entry software project

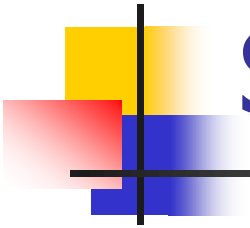
Software Project: Order Entry
Software Module: Test No: 2

Sequence	Source	Script Event	Evaluation Criteria	Comments
1	Data Entry Clerk	The data entry clerk enters an invalid customer order	The customer number should be rejected as invalid	A help routine would help to locate the proper customer number
2	Data Entry Clerk	The data entry clerk enters a correct order into the system for one or more invalid company	The system should, first, confirm that the information entered is valid and for legitimate values and, second, ask the data entry clerk to verify that all the information has been entered correctly	This tests the entry of a valid order through the date validation routines



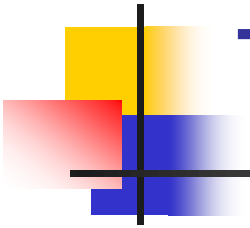
Subtask 3: Define Test Administration

- Administrative component identifies
  - The schedule
  - Test Milestones
  - Resources needed to execute the test plan as indicated in the test matrix
- Like the implementation plan, the test plan is a dynamic document



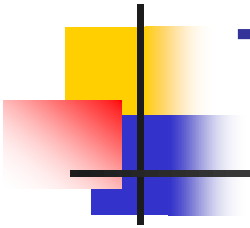
Subtask 4: Write the Test Plan

- Formal or informal – depending on the organization's culture
  - Revisit Later!!!!!



Test Plan Document

- The Test Plan
  - Outlines the process to be followed in testing the application system
  - Includes the plan and specifications for the test and how those tests will be evaluated
  - Includes the description of the tests themselves

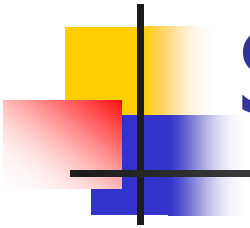


Test Plan Document

- Should contain a table of contents
  - Section 1: Introduction - General info
  - Section 2: The test plan itself
  - Section 3: The test specifications, methods, constraints for conducting the test, and evaluation process
  - Section 4: test descriptions (i.e. test conditions)

Section 1 - Introduction

- *Summary:*
  - Summarizes the functions of the system and the tests to be performed
- *Environment and Pretest Background:*
  - Summarizes history of the project
  - Id user organization and testing center
- *References:*
  - Testing policies, standards, and procedures
  - Test processes, techniques, tools

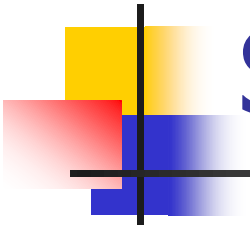


Section 2 - Plan

- Software description
  - Functions of the system, input and output
- Milestones
- Testing (id location)

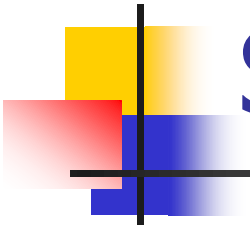
Section 2 – Testing contd.

- Schedule:
  - Detailed schedule of dates and events
- Requirements State resources needed:
  - Equipment:
    - Show expected period of use, types, quantity
  - Software:
    - Software needed to support the testing
  - Personnel:
    - List numbers and skill types of personnel expected to be available during testing



Section 2 – Testing contd.

- Testing Materials – needed for the test
  - Documentation
  - Software to be tested and its medium
  - Test inputs and sample outputs
  - Test control software and work paper
- Test Training:
  - Describe the plan for providing training in the use of the software being tested

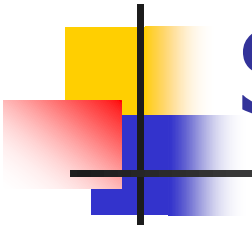


Section 3 – Spec and Eval

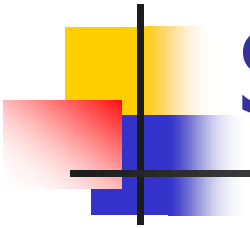
- Describe the test conditions to be evaluated during testing. Test matrices are invaluable here:
  - Requirements:
    - List functional requirements established by earlier documentation
  - Software Functions:
    - List detailed application functions to be exercised during the overall test (Consider test matrix here!!!)

Section 3 – Spec & Eval contd.

- Test/Function relationships
  - List tests to be performed on the software and relate them to (previous last bullet) … 3.1.2??
- Test Progression (Technical Architecture)
  - Describe the manner in which progression is made from one test to another to complete the entire test cycle
  - Diagram the components that make up the system under test
  - Include data storage and transfer connections and describe the purpose each component serves

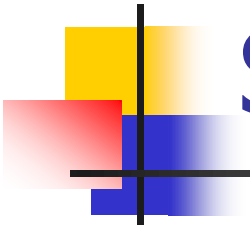


Section 4



Summary

- Introduction:
- Establishes the scope and purpose of the test plan
- Describes the fundamental aspects of the testing effort
  - Purpose - describe why the test plan is being developed:
    - Requirements
    - Define testing strategies
    - Identify resources
    - Estimating schedules and deliverables

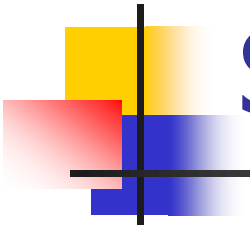


Summary – Introduction contd

- Background – Explain any events that caused the test plan to be developed
  - Technical Architecture
    - Diagram components making up the system under test
    - Data storage and transfer connections
    - Purpose each component serves

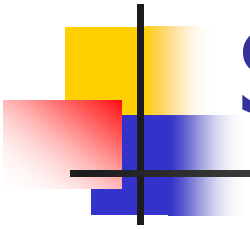
Summary – Introduction contd

- Specification:
  - List required hardware and software including vendors and versions
- Scope - Briefly describe
  - The resources the plan requires
  - Areas of responsibility
- Project Information -Identify all the info that's available in relation to the project:
  - Project plan
  - Product specs
  - Training manuals
  - Executive overview materials, etc



Summary – Test Strategy

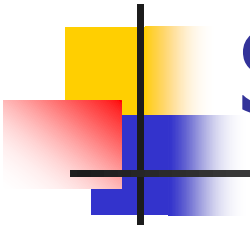
- Describes how the test objectives will be met for each type of test that's part of the plan:
  - Unit
  - Function
  - Integration
  - System
  - Volume
  - Stress
  - Performance
  - Configuration and or installation



Summary – Test Strategy

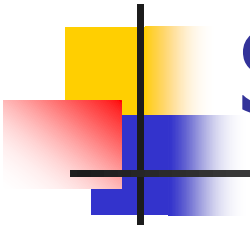
- For each subset, detail the following:
- Objectives:

- Technique
  - Document how test cases are to be developed



Summary – Test Strategy

- Special Considerations
- Test Cases
  - List the actual test cases that will be used
- Completion Criteria:
  - Record the criteria that will be used to determine pass/fail of tests and the action that must be taken based on the results

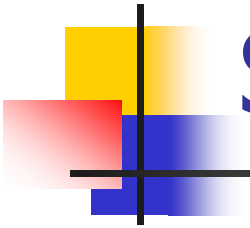


Summary – Test Strategy

- Assumptions
  - Describe any outside projects or issues that may impact the effectiveness or timeliness of the test effort
- Tools
  - Document the tools that will be employed in testing
  - Cite
    - Vendor
    - Version
    - Help desk number to call for support

Summary – Resources

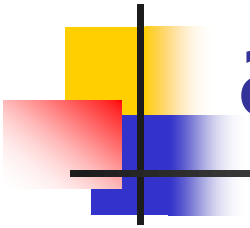
- Identify the resource roles and responsibilities required for the test plan execution
- Project Plan
  - Develop
  - Update



Summary

- Schedule:
  - Document
  - Specify if frequent builds will be provided on a regular basis during the test cycle, or timeliness of availability of system components
- Deliverables
  - List all deliverables associated with the testing effort

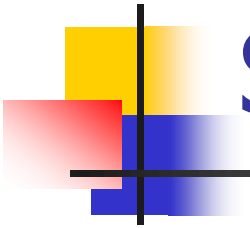
Summary – Defect Tracking and Reporting



- Document the tools and process used to record and track defects
- List reports to be produced and include recipients, frequencies, delivery mechanisms and examples
- Identify team resources involved in the defect tracking process
- Describe ratings, categories or classifications used for prioritizing defects

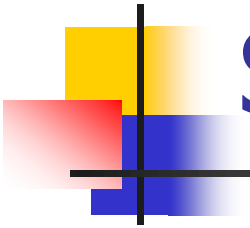
Summary – Defect Tracking and Reporting

- Sample categories for prioritizing defects:
  - Critical:
  - Severe
  - Annoyance
  - Cosmetic



Summary

- Approval
  - The test plan should
    - be reviewed by all parties responsible for its execution, and approved by the test team, product and development managers
    - Provide for approval signatures at the end of the test plan



Summary

- Results
  - When the test effort is complete
    - document the results
    - Identify any discrepancies between the plan and the actual implementation, and document how those discrepancies should be (were) handled