



Core Testing>Basic Testing>Day 1

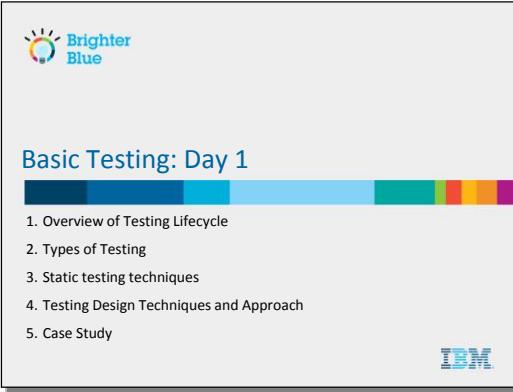
Instructor Guide

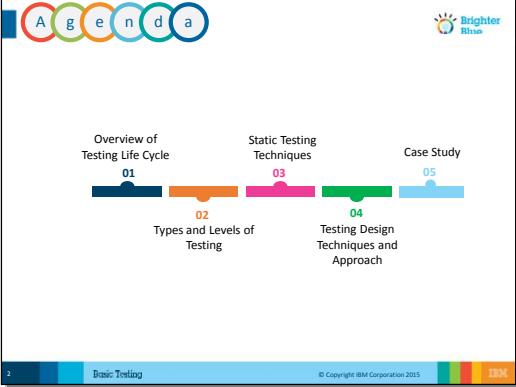


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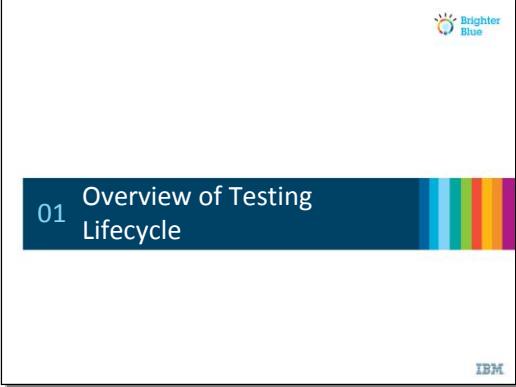
Module 01: Overview of Testing Life Cycle

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 1</p>  <p>The slide content includes:</p> <ul style="list-style-type: none">1. Overview of Testing Lifecycle2. Types of Testing3. Static testing techniques4. Testing Design Techniques and Approach5. Case Study <p>IBM</p>		

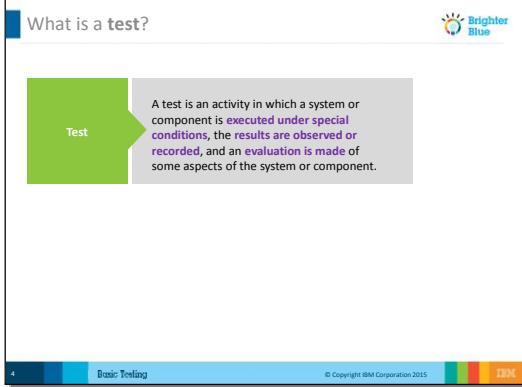
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 2</p>  <p>The agenda slide features a decorative header with the word "Agenda" in a stylized font where each letter is a different color (A: blue, g: orange, e: green, n: red, d: purple). Below the title, there is a horizontal timeline with five colored segments corresponding to the agenda items:</p> <ul style="list-style-type: none"> 01 Overview of Testing Life Cycle (blue) 02 Types and Levels of Testing (orange) 03 Static Testing Techniques (pink) 04 Testing Design Techniques and Approach (green) 05 Case Study (purple) <p>At the bottom of the slide, there is a footer bar with the text "Basic Testing" and the IBM logo.</p>	<p>Purpose: To go over the course structure and tell the participants the module names</p> <p>Approximate Duration: 5 minutes (depending on length of program)</p> <p>What to cover:</p> <ul style="list-style-type: none"> Distribute the Participant guides and Program attendance sheets Go over the agenda for each of the modules. Briefly describe the subject areas that will be covered and the activities that will be performed like exercises, case studies and so on. Address the expectations that the participants listed in their introductions. Include information about breaks, lunch and so on. While describing the agenda. 	

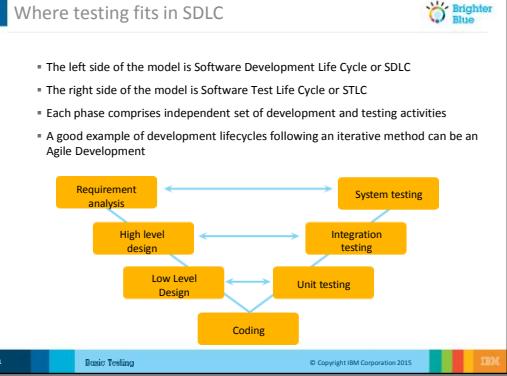
Slide Content	Instructor Guide	Use this space for your notes
	<ul style="list-style-type: none">• Inform the participants about the evaluation criteria and end of course assessments.• Inform the participants that you expect highly interactive sessions and that you welcome any questions that they might have.• Ask that all participants turn off their phones or put them in silent mode. Inform them that if they are found to be using their phones or any mobile devices during the sessions that it will be confiscated and returned only at the end of the day.• Inform the participants of the location of exits (in case of fires or any other emergencies).• Go over the format of the Participant guide. Encourage them to take notes as the	

Slide Content	Instructor Guide	Use this space for your notes
	course using the Notes pages provided in the guide.	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 3</p>  <p>At the end of this module, you should be able to:</p> <ul style="list-style-type: none"> • Give an overview of testing lifecycle • Describe the various test strategies • Describe the varied facets of test planning • Recall the process of Test Case creation • Recall the process of test execution • List the testing types • Describe default workflow 	<p>Purpose: To go over the objectives of this module</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Explain the module objectives. 	

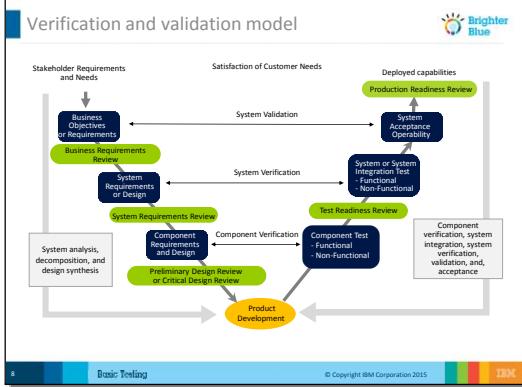
Slide Content	Instructor Guide	Use this space for your notes

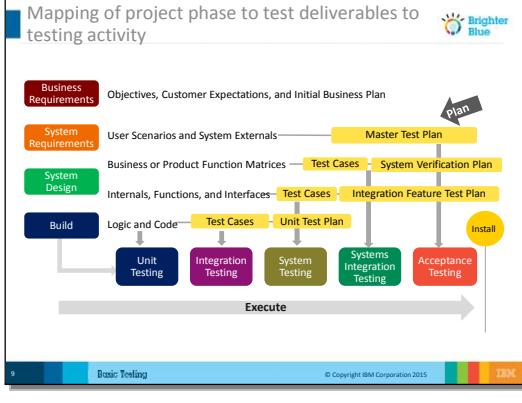
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 4</p>  <p>The slide content includes a title 'What is a test?' and a definition: 'A test is an activity in which a system or component is executed under special conditions, the results are observed or recorded, and an evaluation is made of some aspects of the system or component.' The slide footer shows 'Basic Testing' and the IBM logo.</p>	<p>Purpose: To define a test.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that we begin from the basics. Before getting into test design techniques, let us define a test. ▪ Now refer to the slide and define what a test to the participants is. 	

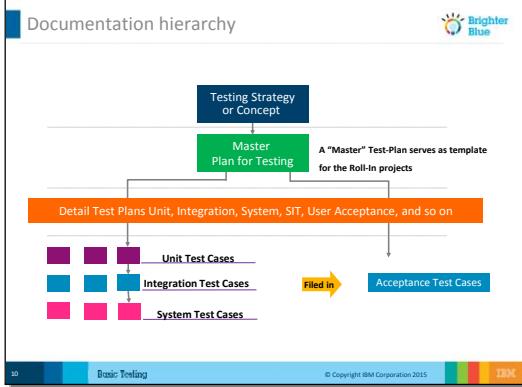
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 5</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Where testing fits in SDLC</p> <p>The left side of the model is Software Development Life Cycle or SDLC The right side of the model is Software Test Life Cycle or STLC Each phase comprises independent set of development and testing activities A good example of development lifecycles following an iterative method can be an Agile Development</p>  <pre> graph TD RA[Requirement analysis] --> HD[High level design] HD --> LL[Low Level Design] LL --> C[Coding] C --> UT[Unit testing] UT --> IT[Integration testing] IT --> ST[System testing] RA -.-> ST HD -.-> ST LL -.-> ST C -.-> ST UT -.-> ST IT -.-> ST ST -.-> RA ST -.-> HD ST -.-> LL ST -.-> C ST -.-> UT ST -.-> IT </pre> <p>Basic Testing © Copyright IBM Corporation 2015</p> </div>	<p>Purpose: Describe where testing fits in SDLC</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Explain the phases of SDLC Illustrate how testing is an integral part of this flow 	

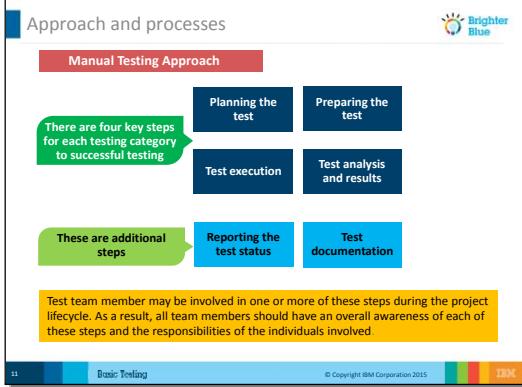
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 6</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>SDLC and Verification and validation model</p> <p>The different phases of Software Development Cycle are:</p> <ul style="list-style-type: none"> ▪ Requirement gathering stage: In this stage one needs to gather as much information as possible about the details and specifications of the desired software from the client. ▪ Design stage plan: In this stage programming languages like Java, PHP, .NET, and database like Oracle, MySQL, and so on that would be suited for the project, also high-level functions and architecture. ▪ Built stage: After design stage, it is built stage, that is nothing but actually code the software. ▪ Deployment stage: In this stage one needs to deploy the application in the respective environment. ▪ Testing stage: In this stage software testing is done. ▪ Maintenance stage: Once your system is ready to use, you may require to change the code later on as per customer request. <p>Basic Testing © Copyright IBM Corporation 2015</p> </div>	<p>Purpose: To go over the SDLC and verification and validation model</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • List the different phases of Software Development Life Cycle 	

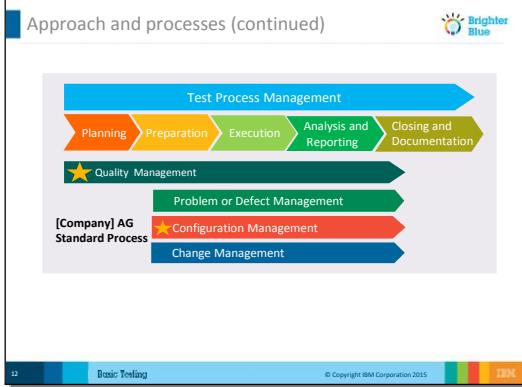
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 7</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>SDLC and Verification and validation model (continued)</p>  <ul style="list-style-type: none"> * Deployment stage: In this stage one needs to deploy the application in the respective environment. * Testing stage: In this stage software testing is done. * Maintenance stage: Once your system is ready to use, you may require to change the code later on as per customer request. <p>Conclusion</p> <ul style="list-style-type: none"> * Testing is not a stand-alone activity, and it has to adapt the development model chosen for the project. * In any model, testing should be performed at all levels i.e. right from requirements until maintenance. <p>3 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	<p>Purpose: To go over the SDLC and verification and validation model (continued from last slide)</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • List the different phases of SDLC • Explain the importance of testing phase in a SDLC 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 8</p>  <pre> graph TD A[Stakeholder Requirements and Needs] --> B[Business Requirements or Requirements] B --> C[Business Requirements Review] C --> D[System Requirements or Design] D --> E[System Requirements Review] E --> F[Components Requirements and Design] F --> G[Preliminary Design Review or Critical Design Review] G --> H[Product Development] H --> I[Component Verification] I --> J[Component Test - Functional + Non-Functional] J --> K[Test Requirements Review] K --> L[System or System Integration Test - Functional + Non-Functional] L --> M[System Operability] M --> N[Production Readiness Review] N --> O[Deployed capabilities] O -- Satisfaction of Customer Needs --> P[Stakeholder Requirements and Needs] </pre> <p>The diagram illustrates the Verification and validation model. It starts with Stakeholder Requirements and Needs, leading to Business Requirements or Requirements. This leads to Business Requirements Review, then System Requirements or Design, followed by System Requirements Review. This leads to Components Requirements and Design, then Preliminary Design Review or Critical Design Review, finally Product Development. From Product Development, the process moves to Component Verification, then Component Test - Functional + Non-Functional, followed by Test Requirements Review. This leads to System or System Integration Test - Functional + Non-Functional, then System Operability, and finally Production Readiness Review. The final outcome is Deployed capabilities, which leads back to Satisfaction of Customer Needs, completing the cycle.</p>	<p>Purpose: To illustrate verification and validation model</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Illustrate the verification and validation model Describe how the product development process is directly affected by the verification process 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 9</p>  <p>The diagram illustrates the mapping of project phases to test deliverables and activities. It shows a flow from planning to execution, with various test types mapped to specific phases.</p> <ul style="list-style-type: none"> Plan: Master Test Plan, System Verification Plan, Integration Feature Test Plan. Business Requirements: Objectives, Customer Expectations, and Initial Business Plan. System Requirements: User Scenarios and System Externals. System Design: Business or Product Function Matrices, Internals, Functions, and Interfaces. Build: Logic and Code. Execute: Unit Testing, Integration Testing, System Testing, Systems Integration Testing, Acceptance Testing. Install: A circular node connected to the Acceptance Testing step. <p>A horizontal arrow at the bottom indicates the flow from Plan to Execute.</p>	<p>Purpose: To illustrate how project phase is mapped to test deliverables to testing activity</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Illustrate how project phase is mapped to test deliverables to testing activity. Describe how each of features are related to the various types and stages of testing 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 10</p>  <pre> graph TD TS[Testing Strategy or Concept] --> MP[Master Plan for Testing] subgraph MP_Box [A "Master" Test-Plan serves as template for the Roll-In projects] MP DTP[Detail Test Plans Unit, Integration, System, SIT, User Acceptance, and so on] UTC[Unit Test Cases] ITC[Integration Test Cases] STC[System Test Cases] ATC[Acceptance Test Cases] FileIn[Filed in] end DTP --> UTC DTP --> ITC DTP --> STC UTC --> ATC ITC --> ATC STC --> ATC FileIn --> ATC </pre>	<p>Purpose: To illustrate the documentation hierarchy</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe how the documentation hierarchy concept works through a clear illustration 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 11</p>  <pre> graph TD A[Approach and processes] --> B[Manual Testing Approach] B --> C[Planning the test] B --> D[Preparing the test] C --> E[Test execution] D --> F[Test analysis and results] E --> G[Reporting the test status] F --> H[Test documentation] G --> I["Test team member may be involved in one or more of these steps during the project lifecycle. As a result, all team members should have an overall awareness of each of these steps and the responsibilities of the individuals involved"] I --> J[These are additional steps] </pre> <p>The diagram illustrates the manual testing approach. It starts with 'Approach and processes' leading to 'Manual Testing Approach'. This leads to four main steps: 'Planning the test', 'Preparing the test', 'Test execution', and 'Test analysis and results'. Below these four steps, there are two additional steps: 'Reporting the test status' and 'Test documentation'. A callout box highlights 'These are additional steps'. A note at the bottom states: 'Test team member may be involved in one or more of these steps during the project lifecycle. As a result, all team members should have an overall awareness of each of these steps and the responsibilities of the individuals involved'.</p>	<p>Purpose: To describe the manual testing approach</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe the manual testing approach and its key steps involved. Inform the participants about the additional steps needed as well 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 12</p>  <p>The diagram illustrates the Test Process Management flow, starting with Planning, followed by Preparation, Execution, Analysis and Reporting, and Closing and Documentation. Above this main flow is a horizontal bar for Quality Management. Below the main flow, there are three additional management processes: Problem or Defect Management, Configuration Management, and Change Management. The entire process is labeled as the [Company] AG Standard Process.</p>	<p>Purpose: To describe the test process management process</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe how the test process management process works Illustrate the standard process of quality management 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 13</p>  <p>Building up the test team:</p> <ul style="list-style-type: none"> • Recruit and Onboard team members • Assign team members to roles (Business and IT) • Coach testing team members (Key User on Application) <p>Planning testing activities:</p> <ul style="list-style-type: none"> • Analyze business requirements 	<p>Purpose: To describe the various phases or steps in the planning phase of testing</p> <p>Approximate Duration: 8 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe the various phases or steps in testing including planning, preparation, execution, analysis, and reporting and closing and documentation. • Inform the participants about the role that they play in the entire planning phase 	

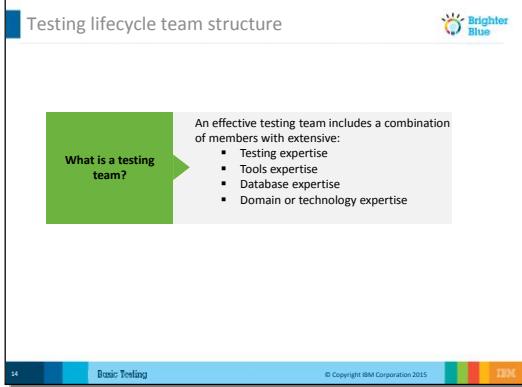
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> • Estimate test effort • Create Project Plan • Prepare test plan or test strategy document for various types of testing • Select test tool • Plan resource and determine roles and responsibilities <p>Creation of test data:</p> <ul style="list-style-type: none"> • Align with business user and business analyst to define demand for test data • Create test data <p>Requirement traceability matrix:</p> <ul style="list-style-type: none"> • Prepare the requirement traceability verification matrix or RTVM by mapping each requirement with test cases <p>Review the test cases and test data with client:</p> <ul style="list-style-type: none"> • Send the initial version of test cases for review 		

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> • Close all the review comments by updating the test cases • Get signed off test cases and test data • Archive approved test cases and test data <p>Development of test cases:</p> <ul style="list-style-type: none"> • Identify test cases • Evaluate test cases regarding risk categories • Define test entry and exit criteria • Describe test cases • Peer review of test cases <p>Test Readiness Review</p> <ul style="list-style-type: none"> • Verify test environment is setup and stable for execution 		

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> • Verify unit test results pass the entry criteria of testing phase • Client-approved test cases and test data • Perform Smoke test <p>Execute Testing</p> <ul style="list-style-type: none"> • Execute tests as per plan • Document test results, and log defects for failed cases • Update test plans or test cases, if necessary • Retest the defect fixes and tack the defects to closure • Do regression testing of application <p>Analysis</p> <ul style="list-style-type: none"> • Analyze the Test results 		

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> • Prepare Test Metrics: Time, Test coverage, Cost, Software Quality, and Critical Business Objectives • Perform Causal analysis— prepare Causal Analysis Report <p>Reporting</p> <ul style="list-style-type: none"> • Publish Test Metrics • Publish Test reports: Test Summary report, Causal Analysis Report, and Audit Report <p>Closing and Documentation</p> <ul style="list-style-type: none"> • Analyze the Test results • Prepare Test Metrics- Time, Test coverage, Cost, Software Quality, and Critical Business Objectives • Perform Causal analysis— Prepare Causal Analysis Report 		

Slide Content	Instructor Guide	Use this space for your notes

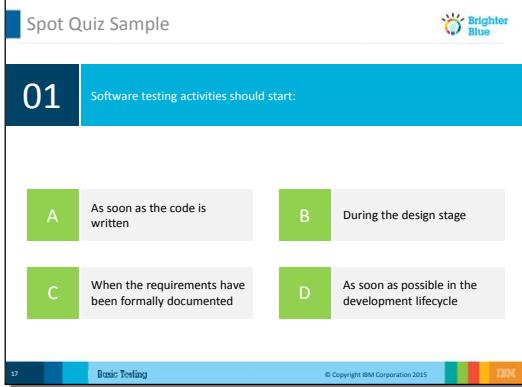
Slide Content	Instructor Guide	Use this space for your notes
Slide 14 <div data-bbox="270 437 792 824">  <p>The slide title is "Testing lifecycle team structure". A green callout box on the left contains the question "What is a testing team?". To the right, text states: "An effective testing team includes a combination of members with extensive:" followed by a bulleted list: "Testing expertise", "Tools expertise", "Database expertise", and "Domain or technology expertise". The slide footer includes the number "14", the title "Basic Testing", and the IBM logo.</p> </div>	<p>Purpose: To define a testing team</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe what is a typical testing team and its structure 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 15</p>  <p>The slide features a yellow background with a blue sidebar on the left containing the word 'Activity'. On the right, there's a white area with the Brighter Blue logo at the top. Below it, the text 'Remember and recite the testing lifecycle term definitions given in the lists provided below:' is displayed. There are four document icons labeled 'Testing Lifecycle Term Definitions A', 'Testing Lifecycle Term Definitions B', 'Testing Lifecycle Term Definitions C', and 'Testing Lifecycle Term Definitions D'. At the bottom left is the number '15' and the text 'Basic Testing'. At the bottom right is the IBM logo.</p>	<p>Approximate Duration: 16 mins</p> <p>Additional Materials or Pre-session prep tasks:</p> <ul style="list-style-type: none"> • Divide the participants into four groups. • Distribute one list each to each group. • For the embedded documents, ask the participants to refer to the Supporting Documents_Day 1 folder. <p>What to cover:</p> <ul style="list-style-type: none"> • Ask the participants to form four groups • Distribute one list each to each group • You can ask the groups to read the definitions given within two minutes 	

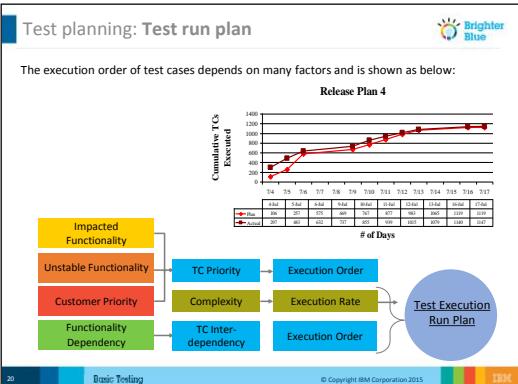
Slide Content	Instructor Guide	Use this space for your notes
	<ul style="list-style-type: none"> • Discuss the list from each group by asking them to recall as much as possible, the definitions read within two minutes • Interchange the lists among groups and repeat the activity until all the teams have covered all the lists <p>Purpose: To see if the participants can remember all the testing lifecycle term definitions</p> <p>Instructions for the participants:</p> <ul style="list-style-type: none"> • Ask the participants to form four groups • Distribute one list each to each group • You can ask the groups to read the definitions given within two minutes 	

Slide Content	Instructor Guide	Use this space for your notes
	<ul style="list-style-type: none"> • Discuss the list from each group by asking them to recall as much as possible, the definitions read within two minutes • Interchange the lists among groups and repeat the activity until all the teams have covered all the lists <p>Debrief:</p> <ul style="list-style-type: none"> • Ask the participants about their experience of this activity and if the exercise has made some basic concepts clear or not <p>Note to SME: Please validate above instruction.</p>	

Slide Content	Instructor Guide	Use this space for your notes
Slide 16 	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Ask the participants if they have any questions. Include any questions that will be addressed later in the course as parking lot items. Use this activity to recap the key takeaways from this module 	

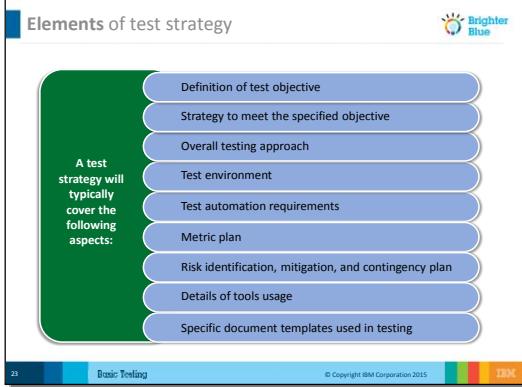
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 17</p>  <p>The correct answer is A. As soon as possible in the development lifecycle</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. The correct answer is A. As soon as possible in the development lifecycle 	

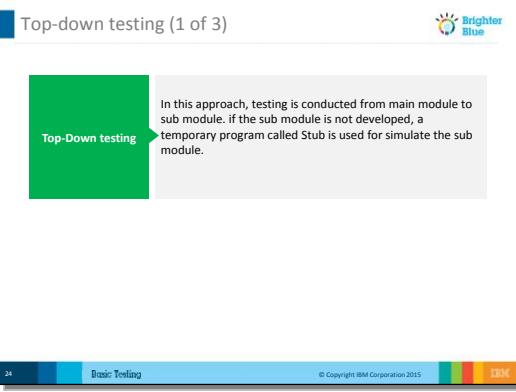
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 18</p>  <p>Typical test plan includes:</p> <ul style="list-style-type: none"> ▪ Test plan identifier ▪ Introduction ▪ Test items ▪ Features to be tested ▪ Features not to be tested ▪ Approach ▪ Testing strategy ▪ Item pass or fail criteria ▪ Suspension criteria and resumption criteria ▪ Test deliverable ▪ Test scope ▪ Testing tasks ▪ Effort estimation ▪ Environmental needs ▪ Roles and responsibilities 	<p>Purpose: To explain the test planning process. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • List what a typical test plan includes 	

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<p>Slide 19</p> <div style="border: 1px solid black; padding: 10px;"> <p>Test planning: Test run plan</p> <p>The execution order of test cases depends on many factors and is shown as below:</p> <p>Release Plan 4</p>  <p>Cumulative TCs Executed</p> <table border="1"> <thead> <tr> <th>Day</th> <th>TCs Executed</th> </tr> </thead> <tbody> <tr><td>7/4</td><td>100</td></tr> <tr><td>7/5</td><td>150</td></tr> <tr><td>7/6</td><td>200</td></tr> <tr><td>7/7</td><td>250</td></tr> <tr><td>7/8</td><td>300</td></tr> <tr><td>7/9</td><td>350</td></tr> <tr><td>7/10</td><td>400</td></tr> <tr><td>7/11</td><td>450</td></tr> <tr><td>7/12</td><td>500</td></tr> <tr><td>7/13</td><td>550</td></tr> <tr><td>7/14</td><td>600</td></tr> <tr><td>7/15</td><td>650</td></tr> <tr><td>7/16</td><td>700</td></tr> <tr><td>7/17</td><td>750</td></tr> <tr><td>7/18</td><td>800</td></tr> <tr><td>7/19</td><td>850</td></tr> <tr><td>7/20</td><td>900</td></tr> <tr><td>7/21</td><td>950</td></tr> <tr><td>7/22</td><td>1000</td></tr> <tr><td>7/23</td><td>1050</td></tr> <tr><td>7/24</td><td>1100</td></tr> <tr><td>7/25</td><td>1150</td></tr> <tr><td>7/26</td><td>1200</td></tr> </tbody> </table> <p>Test Execution Run Plan</p> </div>	Day	TCs Executed	7/4	100	7/5	150	7/6	200	7/7	250	7/8	300	7/9	350	7/10	400	7/11	450	7/12	500	7/13	550	7/14	600	7/15	650	7/16	700	7/17	750	7/18	800	7/19	850	7/20	900	7/21	950	7/22	1000	7/23	1050	7/24	1100	7/25	1150	7/26	1200	<p>Purpose: To describe a test run plan. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe how the execution order of test cases depends on multiple factors 	
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<p>Slide 20</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Test planning: Test run plan (continued)</p>  <ul style="list-style-type: none"> ▪ Pre conditions :- ▪ Requirements baselines ▪ Project Plan finalized ▪ Test items ▪ Features to be tested ▪ Features. <p style="font-size: small;">4 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	<p>Purpose: To describe the preconditions for a test run plan. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe the preconditions for a test run plan 	

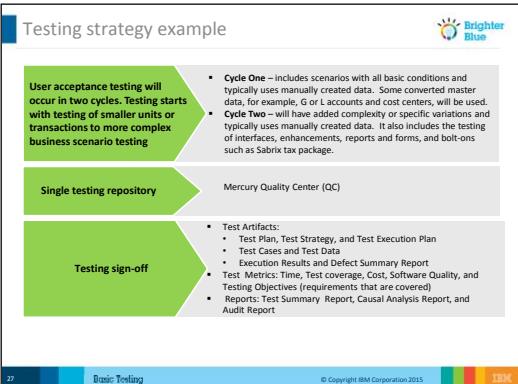
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 21</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Test strategy</p> <ul style="list-style-type: none"> It is a statement of overall approach of testing to meet the business and test objectives. It is a plan level document and has to be prepared in the requirement stage of the project. It identifies the methods, techniques, and tools to be used for testing. It can be a project specific or an organization specific. It is critical to the success of the software development to develop a test strategy, which effectively meets the needs of the organization or project. It must be effective enough to meet the project and business objectives. It should define the strategy upfront before the actual testing helps in planning the test activities. <p>22 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Purpose: To describe the features of test strategy. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Give the participants a brief description regarding the features of test strategy 	

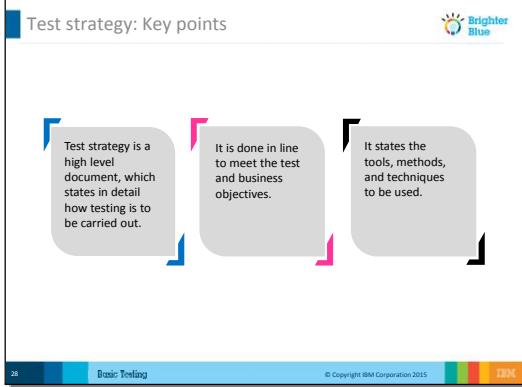
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 22</p>  <p>The slide has a title 'Elements of test strategy' at the top left. To the right is the Brighter Blue logo. A green callout box on the left contains the text 'A test strategy will typically cover the following aspects:'. To the right of the callout is a vertical list of nine items, each in a blue rounded rectangle:</p> <ul style="list-style-type: none"> Definition of test objective Strategy to meet the specified objective Overall testing approach Test environment Test automation requirements Metric plan Risk identification, mitigation, and contingency plan Details of tools usage Specific document templates used in testing <p>At the bottom left is the number '23'. At the bottom right are the 'Basic Testing' and 'IBM' logos.</p>	<p>Purpose: To describe the elements of test strategy. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe the aspects that are typically covered by a test strategy 	

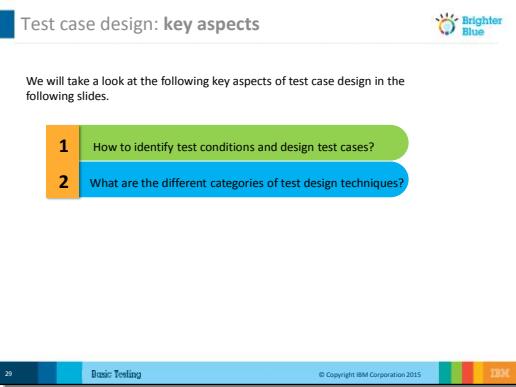
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 23</p>  <p>The slide content includes:</p> <ul style="list-style-type: none"> Title: Top-down testing (1 of 3) Image: A green box containing the text "Top-Down testing". Description: In this approach, testing is conducted from main module to sub module. If the sub module is not developed, a temporary program called Stub is used to simulate the sub module. Navigation: Page number 24, "Basic Testing", and IBM logo. 	<p>Purpose: To understand Top-down testing</p> <p>Approximate Duration: 8 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Provide definition and purpose of Top-down testing. Enumerate and discuss the advantages and disadvantages of Top-down testing. Cite relevant examples. 	

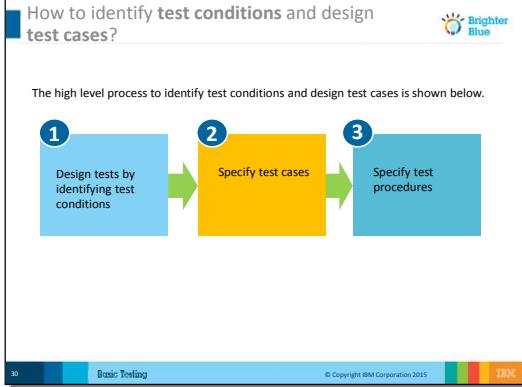
Slide Content	Instructor Guide	Use this space for your notes
Slide 24 <div style="border: 1px solid #ccc; padding: 10px;"> <p>Top-down testing (2 of 3)</p> <p> Advantages</p> <ul style="list-style-type: none"> ▪ Top-down testing is advantageous if major flaws occur toward the top of the program. ▪ Once the I/O functions are added, representation of test cases is easier. ▪ Early skeletal Program allows demonstrations and boosts morale. <p>25 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	<p>Purpose: To recall an example of testing strategy</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe some of the facets of testing strategy including User Acceptance Testing, Single Testing Repository and Testing Sign-Off 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 25</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Top-down testing (3 of 3) </p> <p>Disadvantages →</p> <ul style="list-style-type: none"> ▪ Stub modules must be produced. ▪ Stub modules are often more complicated than they first appear to be. ▪ Before the I/O functions are added, representation of test cases in stubs can be difficult. ▪ Test conditions may be impossible, or very difficult, to create. ▪ Observation of test output is more difficult ▪ Top-down testing allows one to think that design and testing can be overlapped. ▪ Top-down testing induces one to defer completion of the testing of certain modules. <p>26 Basic Testing © Copyright IBM Corporation 2015 </p> </div> <p>Example: Suppose Sales Order Printing program uses another unit which calculates Sales discounts by some complex calculations. Then call to this unit will be replaced by a Stub, which will simply return fix discount data.</p>	<p>Purpose: To describe the key points of test strategy</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe what is test strategy and the key points associated with a typical test strategy. 	

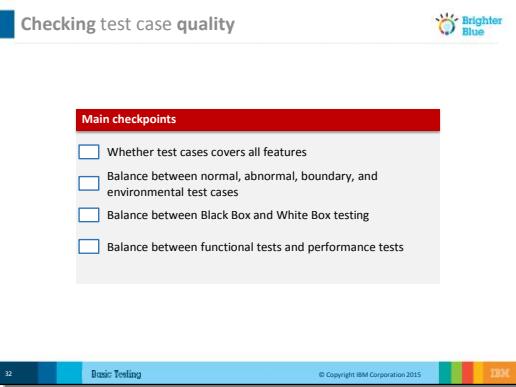
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 26</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Testing strategy example</p>  <p>User acceptance testing will occur in two cycles. Testing starts with testing of smaller units or transactions to more complex business scenario testing</p> <ul style="list-style-type: none"> Cycle One – includes scenarios with all basic conditions and typically uses manually created data. Some converted master data, for example G or L accounts and cost centers, will be used. Cycle Two – will have added complexity or specific variations and typically uses manually created data. It also includes the testing of interfaces, enhancements, reports and forms, and bolt-ons such as Sabrix tax package. <p>Single testing repository</p> <p>Mercury Quality Center (QC)</p> <p>Testing sign-off</p> <ul style="list-style-type: none"> Test Artifacts: <ul style="list-style-type: none"> Test Plan, Test Strategy, and Test Execution Plan Test Cases and Test Data Execution Results and Defect Summary Report Test Metrics: Time, Test coverage, Cost, Software Quality, and Testing Objectives (requirements that are covered) Reports: Test Summary Report, Causal Analysis Report, and Audit Report </div>	<p>Purpose: To point out the main aspects of the test design techniques.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> State the two key aspects of the test design techniques. Tell the participants in the following slides, we will take up the each of the aspects in details. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 27</p>  <p>The slide content shows a slide titled "Test strategy: Key points" with three callout boxes. The first box states: "Test strategy is a high level document, which states in detail how testing is to be carried out." The second box states: "It is done in line to meet the test and business objectives." The third box states: "It states the tools, methods, and techniques to be used." The slide footer includes the number 28, the title "Basic Testing", and the IBM logo.</p>	<p>Purpose: To list the steps for identifying test conditions and designing test cases. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants the three steps used to identify test conditions and designing test cases. ▪ Once you have completed, ask the participants to move to the next slide where we will further discuss on the process. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 28</p> 	<p>Purpose: To explain important terms related to identify test conditions and design test cases.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that in this slide we discuss the important terms that are associated with identifying the test conditions and designing the test cases. 	

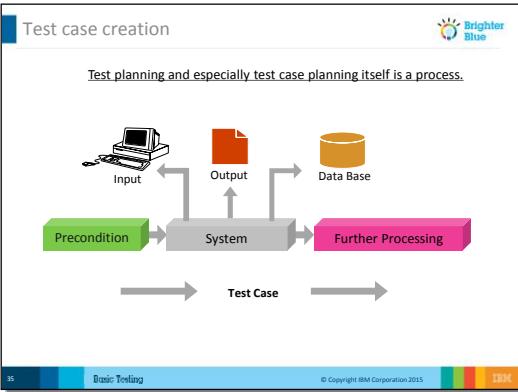
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 29</p>  <p>The high level process to identify test conditions and design test cases is shown below.</p> <pre> graph LR A[1 Design tests by identifying test conditions] --> B[2 Specify test cases] B --> C[3 Specify test procedures] </pre> <p>30 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To list the main checkpoints for checking test case quality. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover: Point out to the participants the main checklists that they need to keep in mind for checking the quality of test cases.</p>	

Slide Content	Instructor Guide	Use this space for your notes								
<p>Slide 30</p> <div data-bbox="270 432 792 824"> <p>How to identify test conditions and design test cases? (continued)</p> <p></p> <table border="1"> <tr> <td>Test condition</td> <td>An item or event that could be verified by one or more test cases (For example, a function, transaction, quality characteristic, or structural element)</td> </tr> <tr> <td>Test cases and test data</td> <td>Developed and described in detail by using test design techniques</td> </tr> <tr> <td>Expected results</td> <td>Produced as part of the specification of a test case and include outputs, changes to data and states, and any other consequences of the test</td> </tr> <tr> <td>Test procedure (manual test script)</td> <td>Specifies the sequence of action for the execution of a test</td> </tr> </table> <p>31 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	Test condition	An item or event that could be verified by one or more test cases (For example, a function, transaction, quality characteristic, or structural element)	Test cases and test data	Developed and described in detail by using test design techniques	Expected results	Produced as part of the specification of a test case and include outputs, changes to data and states, and any other consequences of the test	Test procedure (manual test script)	Specifies the sequence of action for the execution of a test	<p>Purpose: To describe what are test scenarios. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe what test scenarios are. • Inform the participants about the features of test scenarios 	
Test condition	An item or event that could be verified by one or more test cases (For example, a function, transaction, quality characteristic, or structural element)									
Test cases and test data	Developed and described in detail by using test design techniques									
Expected results	Produced as part of the specification of a test case and include outputs, changes to data and states, and any other consequences of the test									
Test procedure (manual test script)	Specifies the sequence of action for the execution of a test									

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 31</p>  <p>The slide content includes:</p> <ul style="list-style-type: none"> Main checkpoints <input type="checkbox"/> Whether test cases covers all features <input type="checkbox"/> Balance between normal, abnormal, boundary, and environmental test cases <input type="checkbox"/> Balance between Black Box and White Box testing <input type="checkbox"/> Balance between functional tests and performance tests <p>Navigation and footer elements include: 32, Basic Testing, © Copyright IBM Corporation 2015, and the IBM logo.</p>	<p>Purpose: To describe what are test scenarios. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe why test scenarios are important 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 32</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>What are Test Scenarios?</p> <ul style="list-style-type: none"> ▪ Test scenarios are the processes to test, such as process a manual non-PO invoice against a cost center: ▪ The testing team and expert users brainstormed test scenarios to test and documented them in a test matrix. Key points considered: <ul style="list-style-type: none"> • Master data requirements such as vendors, cost centers, and so on • Converted data that may be required, for example, assets, cost centers, G or L accounts, and so on • Complexity of the test scenario to determine in which cycle the test should be executed • Determining which interfaces, enhancements, reports, or forms are incorporated into each scenario • Whether a variation changes a step or the entire process that may require a new scenario </div>	<p>Purpose: To illustrate a test case creation process</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe test case planning and creation process through illustrations 	

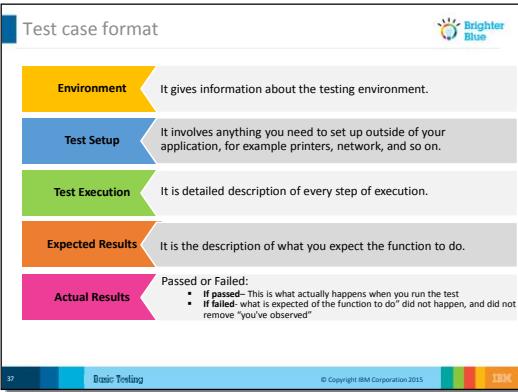
Slide Content	Instructor Guide	Use this space for your notes
Slide 33 <div data-bbox="270 432 792 824"> <p>What are Test Scenarios? (continued)</p> <p>Test scenarios are important because they:</p> <ul style="list-style-type: none"> Set the foundation for testing Demonstrate how the system works Regression testing for future roll-outs and for any change requirements <p>34 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Purpose: To describe what is test case</p> <p>Approximate Duration: 4 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe what is test case • Describe the factors and features associated with a typical test case • Cover the points detailed in the notes section of the slide 	

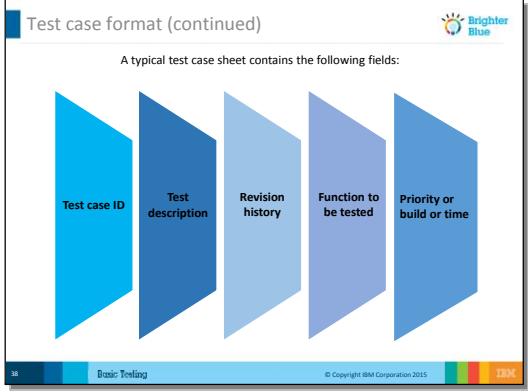
Slide Content	Instructor Guide	Use this space for your notes
Slide 34 <div style="border: 1px solid #ccc; padding: 10px;"> <p>Test case creation</p> <p><i>Test planning and especially test case planning itself is a process.</i></p>  <pre> graph LR subgraph TestCaseCreation [Test case creation] direction TB A[Precondition] --> B[System] C[Further Processing] --> B B --> D[Output] B --> E[Data Base] D --> F[Input] E --> F B --> G[Test Case] G --> H[Further Processing] end </pre> <p>© Copyright IBM Corporation 2015</p> </div>	<p>Purpose: To describe the format of a test case</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe the factors constituting a test case 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 35</p> <div data-bbox="270 432 792 824" style="border: 1px solid #ccc; padding: 10px;"> <p>Test case description</p> <p>A test case is a set of conditions or variables under, which a tester will determine if a requirement upon an application is partially or fully satisfied.</p> <p>1. At least one test case is needed for each requirement 2. Test cases have to be created for each requirement 3. Normal operation is accepted. Different test cases are there for different roles. 4. Application without formal requirement is accepted. 5. Test Scripts are required. 6. The input is known and output is expected.</p> </div> <p>At least one test case for each requirement - It may take many test cases to determine that a requirement is fully satisfied. In order to fully test that all the requirements of an application are met, there must be at least one test case for each requirement unless a requirement has sub requirements.</p> <p>Create test cases for each requirement - In that situation, each sub requirement must have at least one test case, or we should be creating at least two</p>	<p>Purpose: To describe the format of a test case. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe the fields that a typical test case contains 	

Slide Content	Instructor Guide	Use this space for your notes
<p>test cases for each requirement. One of them should perform positive testing of requirement and other should perform negative testing. Create Test cases for different roles (for example, manager view, user view, group, and so on).</p> <p>Accepted normal operation - If the application is created without formal requirements, then test cases are written based on the accepted normal operation of programs of a similar class.</p> <p>Test cases for different roles - Create Test cases for different roles (for example, manager view, user view, group, and so on).</p> <p>Application without formal requirement - If the application is created without formal requirements, then test cases are written based on the accepted normal operation of programs of a similar class.</p> <p>Test Scripts - A test script is the executable form of a test.</p>		

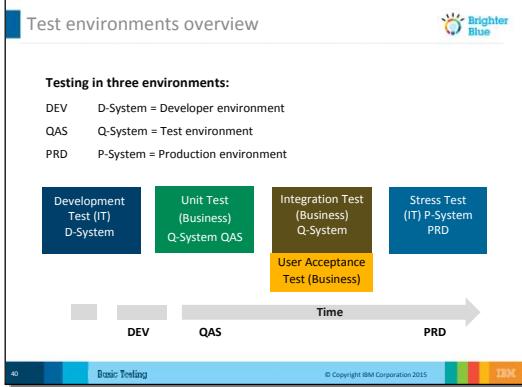
Slide Content	Instructor Guide	Use this space for your notes
<p>Known input and expected output - What characterizes a formal, written test case is that there is a known input and an expected output, which is worked out before the test is executed. The known input should test a precondition and the expected output should test a post condition.</p>		

Slide Content	Instructor Guide	Use this space for your notes
Slide 36 <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p>Test case format</p>  <p>Environment It gives information about the testing environment.</p> <p>Test Setup It involves anything you need to set up outside of your application, for example printers, network, and so on.</p> <p>Test Execution It is detailed description of every step of execution.</p> <p>Expected Results It is the description of what you expect the function to do.</p> <p>Actual Results Passed or Failed: <ul style="list-style-type: none"> ▪ If passed—This is what actually happens when you run the test ▪ If failed—what is expected of the function to do" did not happen, and did not remove "you've observed" </p> </div>	<p>Notes</p> <p>Purpose: To describe the test preparation process. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe the steps in the test preparation process. • Give an elaborate description of the activities that must be done in each of those steps 	

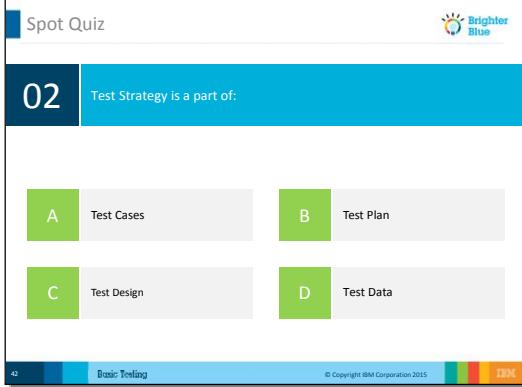
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 37</p>  <p>A typical test case sheet contains the following fields</p> <p>...</p> <p>Test case ID: It is a unique number given to test case in order to be identified.</p> <p>Test description: This is the description of test case you are going to test.</p> <p>Revision history: Each test case has to have its revision history in order to know when and by whom it is created or modified.</p>	<p>Purpose: To recall an overview of test environments. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Recall an overview of test environments through an illustration to make the participants understand in a lucid manner 	

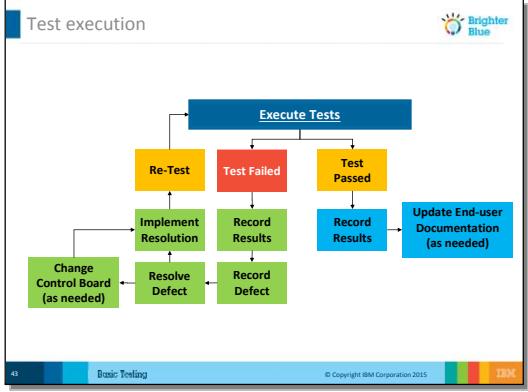
Slide Content	Instructor Guide	Use this space for your notes
<p>Function to be tested: This is the name of function to be tested.</p> <p>Priority or build or time: The priority of the test case, build version of the test case and the minimum time-to-execute the test case are also mentioned.</p>		

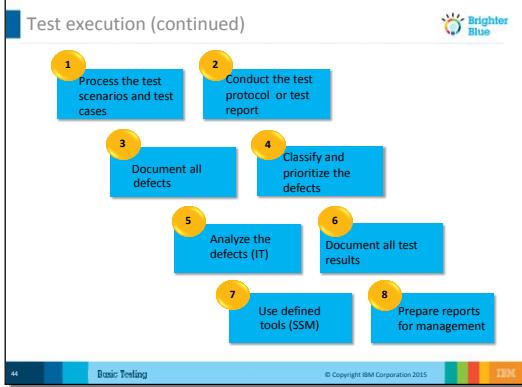
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 38</p> 	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Ask the participants if they have any questions. Include any questions that will be addressed later in the course as parking lot items. Use this activity to recap the key takeaways from this module 	

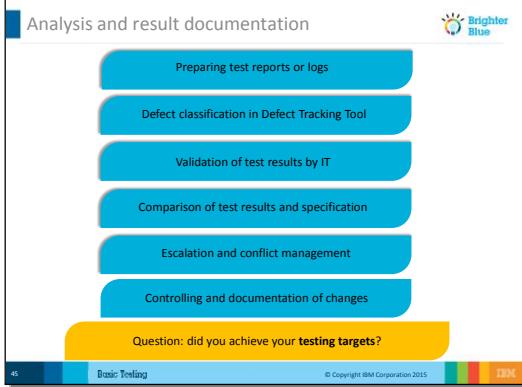
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 39</p>  <p>The slide is titled "Test environments overview". It defines three environments: DEV (Developer environment), QAS (Test environment), and PRD (Production environment). It then maps specific tests to these environments over time:</p> <ul style="list-style-type: none"> Development Test (IT) D-System: DEV Unit Test (Business) Q-System QAS: QAS Integration Test (Business) Q-System: QAS User Acceptance Test (Business): QAS Stress Test (IT) P-System PRD: PRD <p>A horizontal timeline at the bottom shows the progression from DEV to QAS to PRD.</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. The correct answer is B. Test plan 	

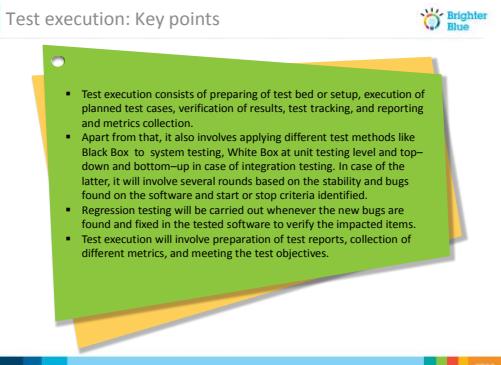
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 40</p>  <p>41 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To illustrate the test execution process</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none">• Describe the test execution process in an illustrative manner	

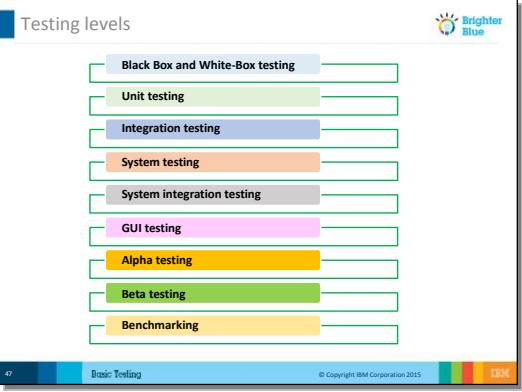
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 41</p>  <p>The correct answer is B. Test plan</p>	<p>Purpose: To illustrate the test execution process</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe the exact steps involved in the test execution process 	

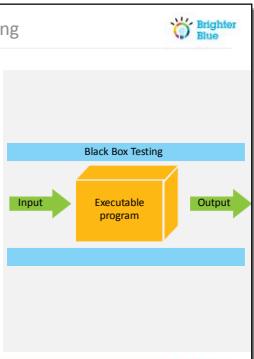
Slide Content	Instructor Guide	Use this space for your notes
Slide 42  <pre> graph TD A[Execute Tests] --> B[Test Passed] A --> C[Test Failed] B --> D[Record Results] B --> E[Update End-user Documentation
(as needed)] C --> F[Re-Test] C --> G[Record Results] C --> H[Update End-user Documentation
(as needed)] F --> I[Implement Resolution] I --> J[Resolve Defect] J --> K[Record Defect] K --> L[Change Control Board
(as needed)] </pre> <p>43 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To describe some of the key steps in analysis and result documentation. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe the key steps in the process of analysis and result documentation. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 43</p>  <p>Test execution (continued)</p> <ol style="list-style-type: none"> 1 Process the test scenarios and test cases 2 Conduct the test protocol or test report 3 Document all defects 4 Classify and prioritize the defects 5 Analyze the defects (IT) 6 Document all test results 7 Use defined tools (SSM) 8 Prepare reports for management <p>44 Basic Testing © Copyright IBM Corporation 2015</p>	<p>Purpose: To describe some key points in test execution. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe some key points and features of test execution 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 44</p>  <p>The slide content includes:</p> <ul style="list-style-type: none"> Analysis and result documentation Preparing test reports or logs Defect classification in Defect Tracking Tool Validation of test results by IT Comparison of test results and specification Escalation and conflict management Controlling and documentation of changes <p>Question: did you achieve your testing targets?</p> <p>45 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To name the various testing levels</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Name the various testing levels Inform the participants about their relevance 	

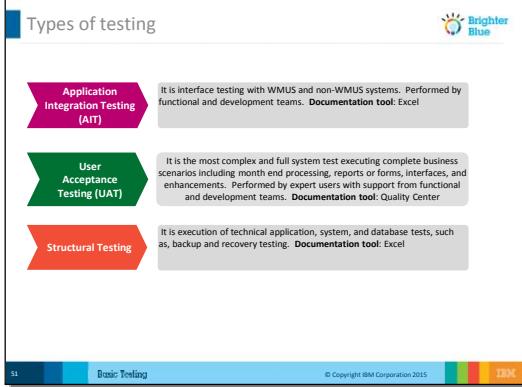
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 45</p> <div style="border: 1px solid #ccc; padding: 10px; background-color: #f9f9f9;"> <p>Test execution: Key points</p>  <ul style="list-style-type: none"> ▪ Test execution consists of preparing of test bed or setup, execution of planned test cases, verification of results, test tracking, and reporting and metrics collection. ▪ Apart from that, it also involves applying different test methods like Black Box to system testing, White Box at unit testing level and top-down and bottom-up in case of integration testing. In case of the latter, it will involve several rounds based on the stability and bugs found on the software and start or stop criteria identified. ▪ Regression testing will be carried out whenever the new bugs are found and fixed in the tested software to verify the impacted items. ▪ Test execution will involve preparation of test reports, collection of different metrics, and meeting the test objectives. </div>	<p>Purpose: To define black box and white box testing. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Explain the process of Black Box testing • Provide an example of when this is applicable 	

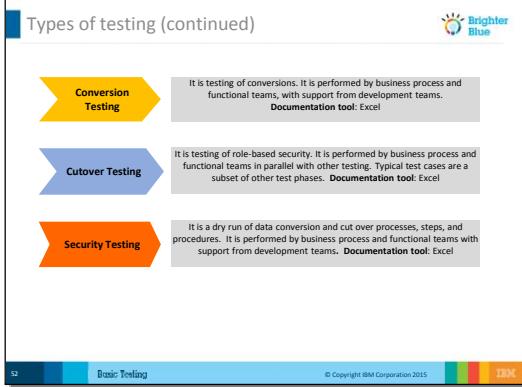
Slide Content	Instructor Guide	Use this space for your notes
Slide 46 <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">  <p>The slide displays a hierarchical list of testing levels:</p> <ul style="list-style-type: none"> Testing levels <ul style="list-style-type: none"> Black Box and White-Box testing Unit testing Integration testing System testing System integration testing GUI testing Alpha testing Beta testing Benchmarking <p>47 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	<p>Purpose: To define black box and white box testing</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Explain the process of white box testing 	

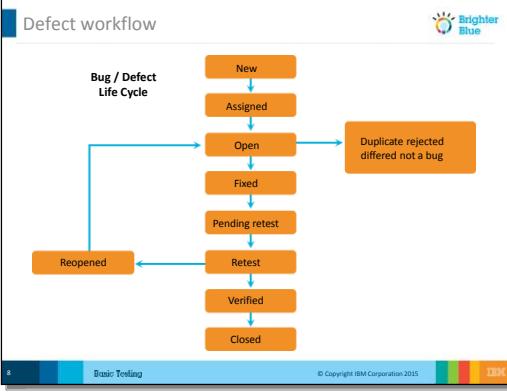
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 47</p> <div style="border: 1px solid black; padding: 10px;"> <p>Black box and white box Testing</p> <p>Black box testing is either functional or non-functional, without reference to the internal structure of the component or system.</p> <p>Select test cases based on an analysis of the specification, either functional or non-functional, of a component or system without reference to its internal structure.</p> <p>Example</p> <ul style="list-style-type: none"> A tester, without knowledge of the internal structures of a website, tests the web pages by using a browser; providing inputs (clicks, keystrokes) and verifying the outputs against the expected outcome. (for example Gmail Page – Opening the URL enter Username Password and click on Submit - GMAIL Home Page to display).  </div>	<p>Purpose: To define black box and white box testing</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Explain the process of white box testing Provide an example of when this is applicable 	

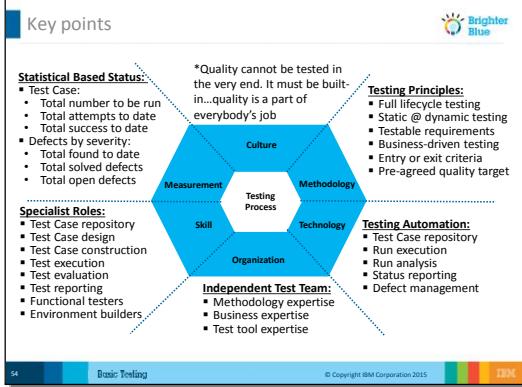
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 48</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>White Box</p> <ul style="list-style-type: none"> ▪ White box testing: This is the type of testing in which the internal structure/design/Logic/ implementation of the item being tested is known to the tester. The tester chooses inputs to exercise paths through the code and determines the appropriate outputs. Programming know-how and the implementation knowledge is essential in this type of testing. ▪ Testing based on an analysis of the internal structure of the component or system. ▪ A tester, usually a developer as well, studies the implementation code of a certain field on a webpage, determines all legal (valid and invalid) AND illegal inputs and verifies the outputs against the expected outcomes, which is also determined by studying the implementation code. </div> <p>6 Basic Testing © Copyright IBM Corporation 2015 </p>	<p>Purpose: To explain the types of testing</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Define the types of testing - AIT, UAT, and Structural Testing • Inform the participants about their relevance 	

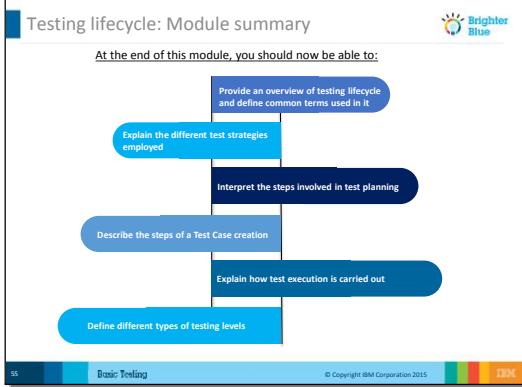
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 49</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>White Box (continued)</p> <p>A tester, usually a developer as well, studies the implementation code of a certain field on a webpage, determines all legal (valid and invalid) AND illegal inputs and verifies the outputs against the expected outcomes, which is also determined by studying the implementation code.</p> <p>For example, Gmail page login page has User name , Password and Submit Button , so the tester will see code of Submit button and all the other two text boxes Username and Password (legal (valid and invalid) AND illegal inputs) to see if they are performing their functions or not.</p> <p>Levels Applicable to:</p> <p>White Box Testing method is applicable to the following levels of software testing:</p> <ul style="list-style-type: none"> ▪ Unit Testing: For testing paths within a unit. ▪ Integration Testing: For testing paths between units. ▪ System Testing: For testing paths between subsystems. </div>	<p>Purpose: To explain the types of testing (continued from last slide)</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Define the types of testing – Conversion, Cutover, and Security Testing • Inform the participants about their relevance 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 50</p>  <p>AIT, UAT, Structural in one Conversion, cutover, security in second ----- phase wise.</p> <p>It is execution of technical application, system, and database tests, such as, backup and recovery testing. Documentation tool: Excel</p>	<p>Purpose: To explain the defect workflow</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe a typical bug or defect lifecycle 	

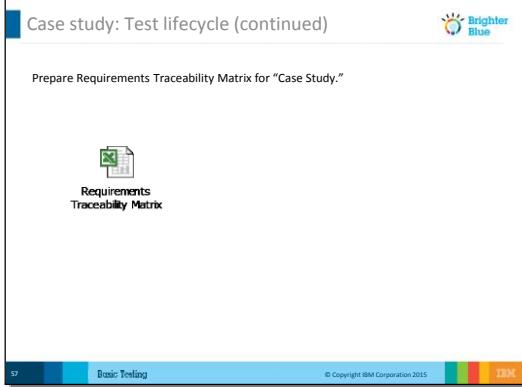
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 51</p>  <p>AIT, UAT, Structural in one Conversion, cutover, security in second ----- phase wise.</p>	<p>Purpose: To describe the key points of a testing process</p> <p>Approximate Duration: 8 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Describe the essential components of a testing process. • Inform the participants about typical examples of the components 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 52</p>  <p>On top is a workflow of a typical defect. The highlighted boxes outline the normal defect workflow, which equals defect status in Quality Centre. The yellow boxes reflect the exception defect workflow. The dashed boxes identify the state of the defect (open or closed).</p>	<p>Purpose: To summarize the take away points of this module</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Inform the participants about the take away points of this module by summarizing the pain points 	

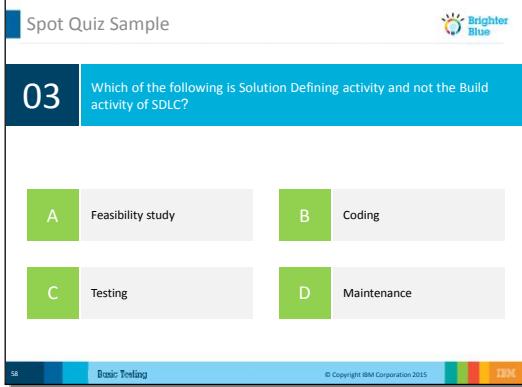
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 53</p>  <p>Key points</p> <ul style="list-style-type: none"> Statistical Based Status: <ul style="list-style-type: none"> Test Case: <ul style="list-style-type: none"> Total number to be run Total attempts to date Total successful attempts Defects by severity Total found to date Total solved defects Total open defects Specialist Roles: <ul style="list-style-type: none"> Test Case repository Test Case design Test Case construction Test execution Test evaluation Test reporting Functional testers Environment builders Independent Test Team: <ul style="list-style-type: none"> Methodology expertise Business expertise Test tool expertise <p>Testing Principles:</p> <ul style="list-style-type: none"> Full lifecycle testing Static @ dynamic testing Testable requirements Business-driven testing Entry or exit criteria Pre-agreed quality target <p>Testing Automation:</p> <ul style="list-style-type: none"> Test Case repository Run execution Run analysis Status reporting Defect management 	<p>Purpose: To understand the test case development and reports in a test lifecycle</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Explain the test case and defect log template and test summary template 	

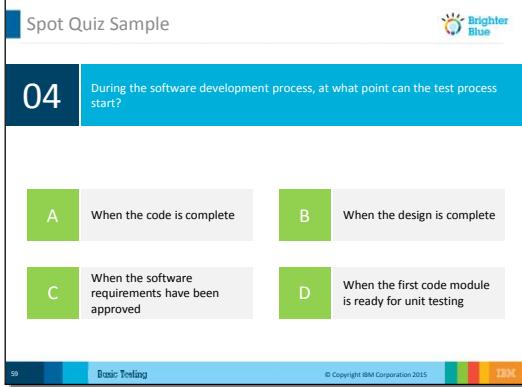
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 54</p>  <p>The slide is titled "Testing lifecycle: Module summary". It features a navigation bar at the top with "Home", "Course Contents", "About", and "Logout". Below the title, it says "At the end of this module, you should now be able to:" followed by a list of six bullet points. At the bottom, there's a footer with "55 Basic Testing © Copyright IBM Corporation 2015" and the IBM logo.</p> <ul style="list-style-type: none"> Provide an overview of testing lifecycle and define common terms used in it Explain the different test strategies employed Interpret the steps involved in test planning Describe the steps of a Test Case creation Explain how test execution is carried out Define different types of testing levels 	<p>Purpose: To understand how to prepare requirements traceability matrix in a test lifecycle</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Explain how to prepare requirements traceability matrix for “Case Study.” 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 55</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Case study: Test lifecycle</p> <p></p> <ul style="list-style-type: none"> ▪ Test case development: <ul style="list-style-type: none"> • Several test cases will be generated as per the test strategy and plan for user interface, functionality and error handling of Global Print in W3. • Integration and system test cases will be generated to test for the application. ▪ Test report: <ul style="list-style-type: none"> • Test cases will be executed and test results will be recorded and tracked. • After bugs are fixed, the system is tested again to verify the same. • The whole system is also tested to verify that new bugs have not been introduced. <p style="text-align: center;">  Test Case and Defect Log Template  Test Summary Template </p> <p style="font-size: small; color: #ccc;">56 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • First, ask the participants to refer to the Supporting Documents_Day 1 folder for the embedded files. • Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. • The correct answer is A. Feasibility study 	

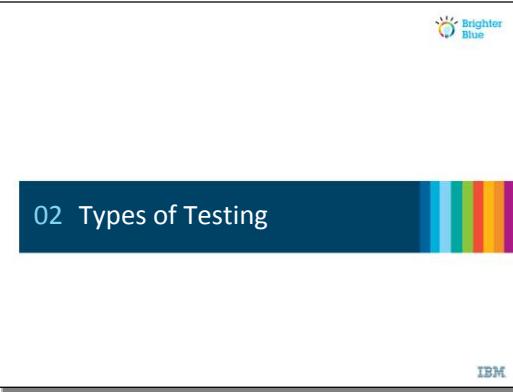
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 56</p> 	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • First, ask the participants to refer to the Supporting Documents_Day 1 folder for the embedded files. • Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. • The correct answer is C. When the software requirements have been approved 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 57</p>  <p>60 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To learn about the different types of Functional testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none">▪ Enumerate the different types of Functional testing.	

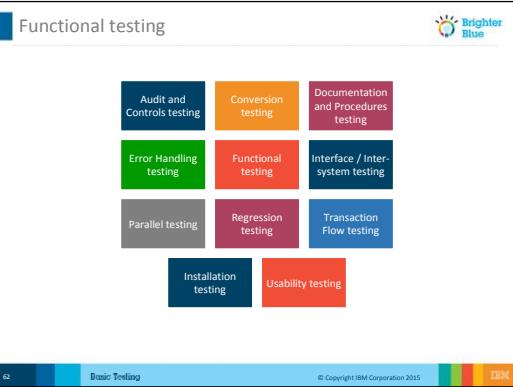
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 58</p>  <p>The correct answer is A. Feasibility study</p>	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Ask the participants if they have any questions. Include any questions that will be addressed later in the course as parking lot items. Use this activity to recap the key takeaways from this module 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 59</p>  <p>The correct answer is C. When the software requirements have been approved</p>	<p>Purpose: To cover the objectives of this module</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Description, types, and examples of Functional testing ▪ Description, types, and examples of Structural testing 	

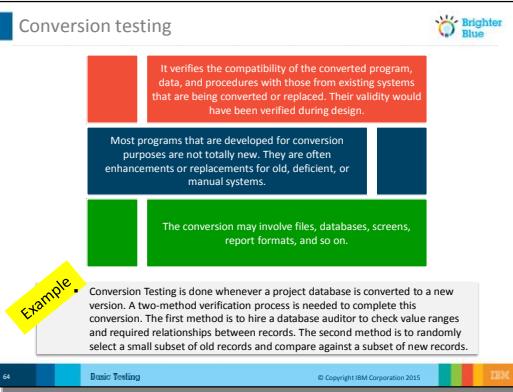
Module 2: Types and Levels of Testing

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 60</p>  <p>At the end of this module, you should be able to:</p> <ul style="list-style-type: none"> ▪ Describe the different types of Functional testing ▪ Outline the different types of Structural testing ▪ Use examples of each type for better explanation and clarity of understanding 	<p>Purpose: To define Audit and Controls testing</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition, purpose, and examples of Audit and Controls testing. ▪ List the examples (in the notes section of the slide) on a flipchart in the classroom. 	

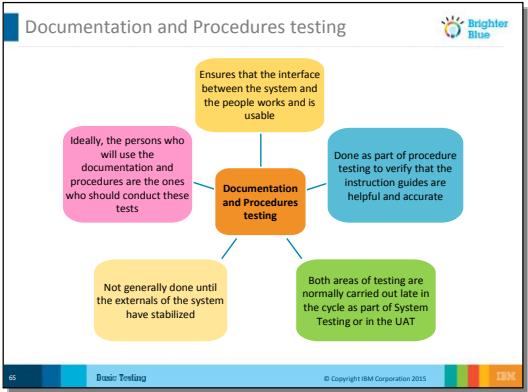
Slide Content	Instructor Guide	Use this space for your notes

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 61</p> 	<p>Purpose: To define Conversion testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition, purpose, and examples of Conversion testing. ▪ Share the example provided in the notes section of the slide. 	

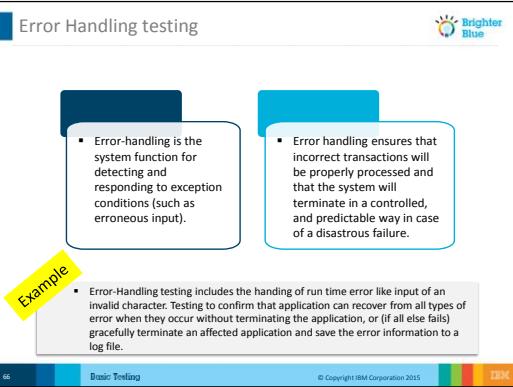
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 62</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Audit and Controls testing</p> <p>It verifies the adequacy and effectiveness of controls and ensures the capability to prove the completeness of data processing results:</p> <ul style="list-style-type: none"> ▪ Their validity would have been verified during design. ▪ This would have been normally carried out as part of System Testing once the primary application functions have stabilized. <p>Examples</p> <ul style="list-style-type: none"> ▪ Inquiries of appropriate management, supervisor, and staff personnel ▪ Inspection of documents, reports, and electronic files ▪ Observation of the application of specific controls ▪ Re-performance of the application of the control by the auditors <p>Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Purpose: To define Documentation and Procedures testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition and purpose of Documentation and Procedures testing. ▪ Share examples of Documentation and Procedures testing provided in the notes section of the slide. 	

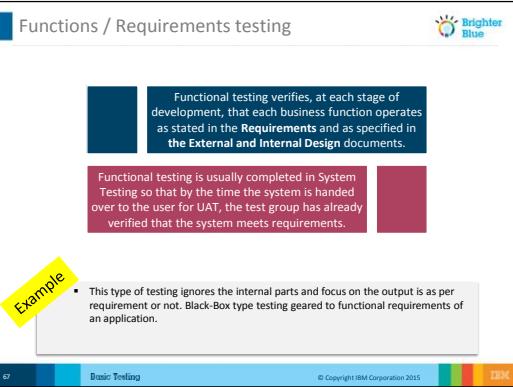
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 63</p>  <p>Example: Conversion Testing is done whenever a project database is converted to a new version. The first verification method involves the use of a database auditor that must be built by the development group. When ran against the converted database, the database auditor will check value ranges within a record and the required relationships between records. The second verification method involves the random selection of a small subset of old records and then a direct comparison with the new records.</p>	<p>Purpose: To define Error Handling testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition and purpose of Error Handling testing. ▪ Use examples to give a better idea to the participants. 	

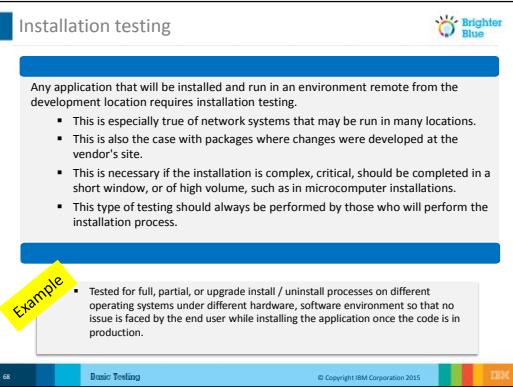
Slide Content	Instructor Guide	Use this space for your notes
<p>comparison against a corresponding subset of the new records.</p>		

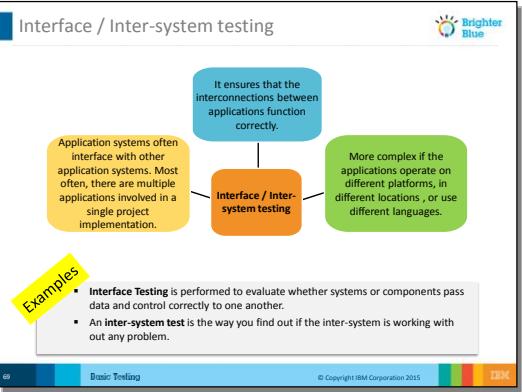
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 64</p>  <p>The diagram illustrates 'Documentation and Procedures testing' with the following points:</p> <ul style="list-style-type: none"> IDEALLY: The persons who will use the documentation and procedures are the ones who should conduct these tests. PURPOSE: Ensures that the interface between the system and the people works and is usable. NOT一般 done until the externals of the system have stabilized: Documentation and Procedures testing is typically performed after the system's external environment has stabilized. WHAT: Done as part of procedure testing to verify that the instruction guides are helpful and accurate. WHEN: Both areas of testing are normally carried out late in the cycle as part of System Testing or in the UAT. <p>Example: Documentation is as important to a product's success as the product itself. If the documentation is poor, non-existent, or wrong, it reflects on the quality of the product. Document testing includes any type of document verification—test case specification, test incident report, test log, test plan, test procedure, and test report.</p>	<p>Purpose: To define Functions / Requirements testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Provide definition and purpose of Functions / Requirements testing. Transfer the knowledge of practical applicability by sharing an example. 	

Slide Content	Instructor Guide	Use this space for your notes

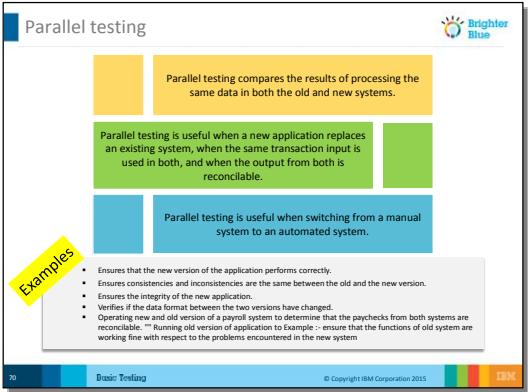
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 65</p>  <p>The slide is titled "Error Handling testing". It contains two main bullet points:</p> <ul style="list-style-type: none"> Error-handling is the system function for detecting and responding to exception conditions (such as erroneous input). Error handling ensures that incorrect transactions will be properly processed and that the system will terminate in a controlled, and predictable way in case of a disastrous failure. <p>A yellow callout box labeled "Example" provides a detailed explanation of error handling:</p> <p>Error-Handling testing includes the handing of run time error like input of an invalid character. Testing to confirm that application can recover from all types of error when they occur without terminating the application, or (if all else fails) gracefully terminate an affected application and save the error information to a log file.</p> <p>At the bottom of the slide, there is a navigation bar with icons for back, forward, and search, followed by the text "65 Basic Testing" and "© Copyright IBM Corporation 2015".</p>	<p>Purpose: To define Installation testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Provide definition and purpose of Installation testing. Use examples of Installation testing to give the participants a better understanding. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 66</p> 	<p>Purpose: To define Interface / Inter-system testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition and purpose of Interface or Inter-system testing. ▪ Use examples to give the participants a better understanding of practical scenarios. 	

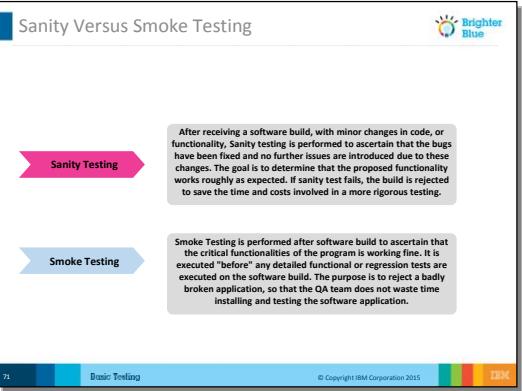
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 67</p>  <p>Purpose: To define Parallel testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition and purpose of parallel testing. ▪ Use examples to give the participants a better understanding. 		

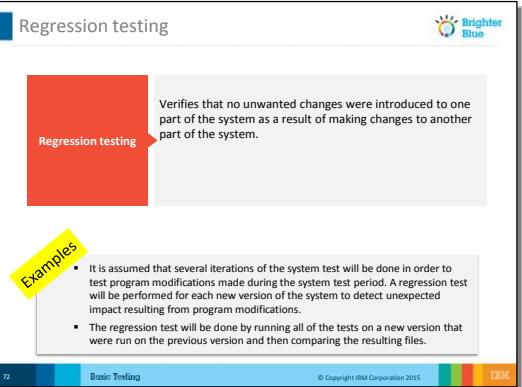
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 68</p>  <p>Example: Interface Testing is performed to evaluate whether systems or components pass data and control correctly to one another. It is to verify if all the interactions between these modules are working properly and errors are handled properly.</p> <p>An inter-system test, for example, could be a memory map, showing what is in memory at that moment. It basically is the way you find out if the inter-system is working without any problem, and is</p>	<p>Purpose: To define Regression testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition and purpose of Regression testing. ▪ Use examples to give the participants a better understanding of practical scenarios 	

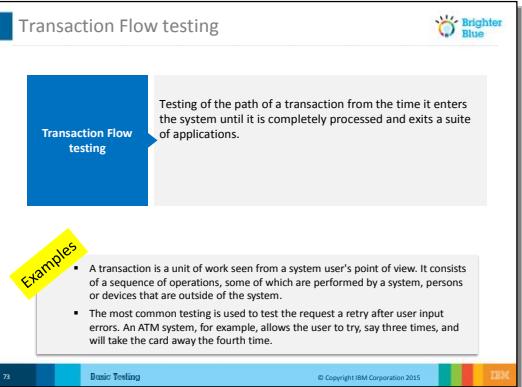
Slide Content	Instructor Guide	Use this space for your notes
<p>a big help when you do have a problem in finding a fix for it.</p>		

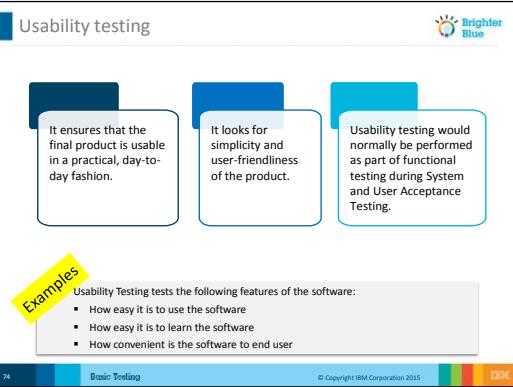
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 69</p>  <p>Example: Parallel testing is a testing technique in which the same inputs are entered in two different versions of the application and reporting the anomalies.</p> <ul style="list-style-type: none"> ▪ Ensures that the new version of the application performs correctly. ▪ Ensures consistencies and inconsistencies are the same between the old and the new version. ▪ Ensures the integrity of the new application. 	<p>Purpose: To define Transaction Flow testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition, purpose, and examples of Transaction Flow testing. ▪ Transfer the knowledge of practical applicability by sharing an example. 	

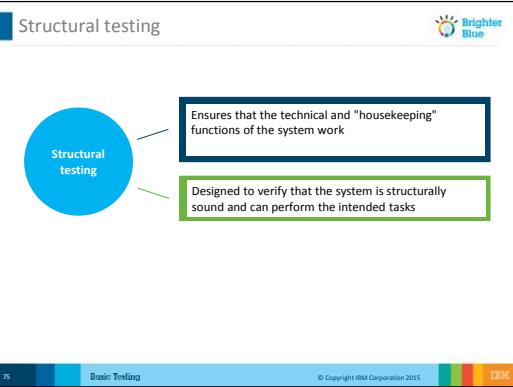
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ Verifies if the data format between the two versions have changed.▪ Operating new and old version of a payroll system to determine that the paychecks from both systems are reconcilable. “Running old version of application to Example: - ensure that the functions of old system are working fine with respect to the problems encountered in the new system.		

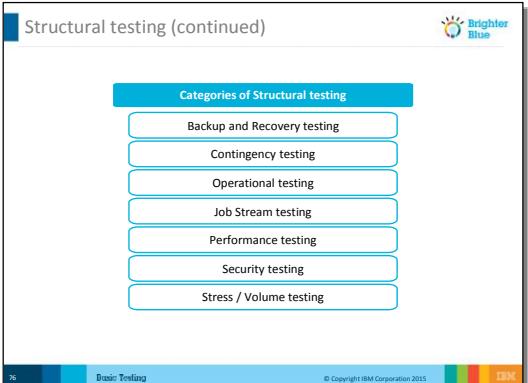
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 70</p>  <p>71 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To define Usability testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition and purpose of Usability testing. ▪ Use examples to give the participants a better understanding of practical scenarios 	

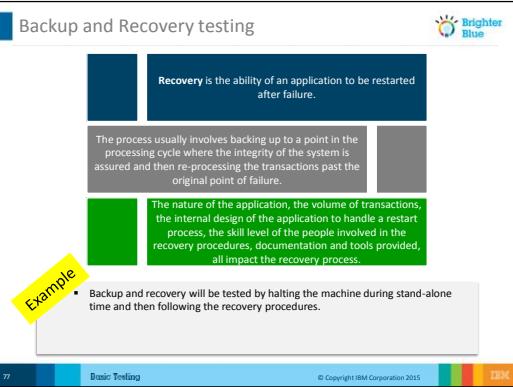
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 71</p>  <p>Regression testing</p> <p>Verifies that no unwanted changes were introduced to one part of the system as a result of making changes to another part of the system.</p> <p>Examples</p> <ul style="list-style-type: none"> It is assumed that several iterations of the system test will be done in order to test program modifications made during the system test period. A regression test will be performed for each new version of the system to detect unexpected impact resulting from program modifications. The regression test will be done by running all of the tests on a new version that were run on the previous version and then comparing the resulting files. <p>72 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To understand the features of Structural testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Explain the characteristics of Structural testing. Identify the categories of Structural testing. 	

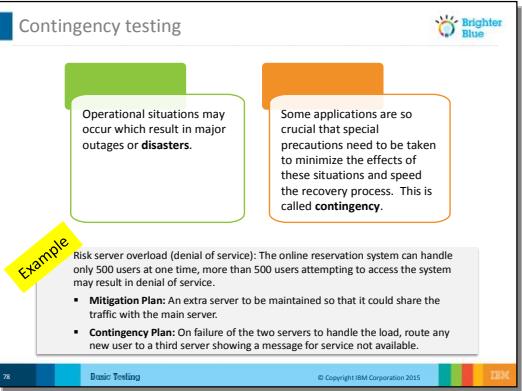
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 72</p>  <p>Slide 72</p> <p>Transaction Flow testing</p> <p>Testing of the path of a transaction from the time it enters the system until it is completely processed and exits a suite of applications.</p> <p>Examples</p> <ul style="list-style-type: none"> A transaction is a unit of work seen from a system user's point of view. It consists of a sequence of operations, some of which are performed by a system, persons or devices that are outside of the system. The most common testing is used to test the request a retry after user input errors. An ATM system, for example, allows the user to try, say three times, and will take the card away the fourth time. <p>72 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To define Backup and Recovery testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Provide definition, purpose, and examples of Backup and Recovery testing. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 73</p>  <p>The slide content includes:</p> <ul style="list-style-type: none"> It ensures that the final product is usable in a practical, day-to-day fashion. It looks for simplicity and user-friendliness of the product. Usability testing would normally be performed as part of functional testing during System and User Acceptance Testing. <p>Examples</p> <p>Usability Testing tests the following features of the software:</p> <ul style="list-style-type: none"> How easy it is to use the software How easy it is to learn the software How convenient is the software to end user <p>74 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To define Contingency testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Provide definition, purpose, and examples of Contingency testing. 	

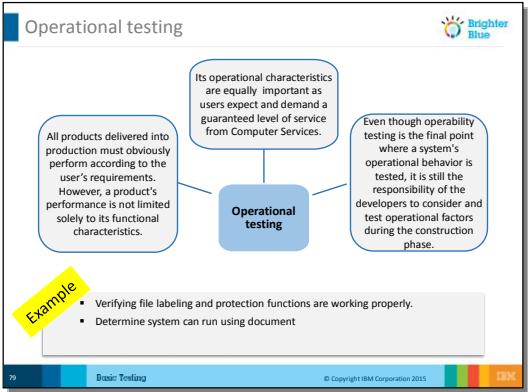
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 74</p>  <p>Structural testing</p> <p>Purpose: Ensures that the technical and "housekeeping" functions of the system work</p> <p>Scope: Designed to verify that the system is structurally sound and can perform the intended tasks</p> <p>75 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To define Operational testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition, purpose, and examples of Operational testing. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 75</p> 	<p>Purpose: To define Job Steam testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition, purpose, and examples of Job Stream testing. 	

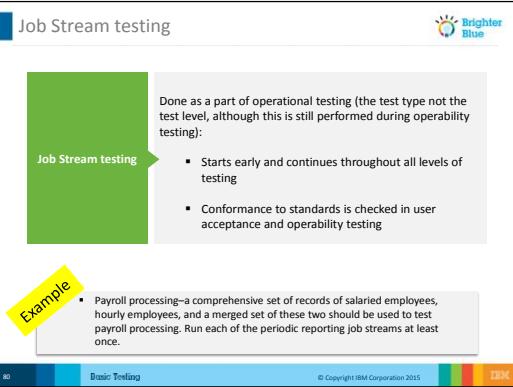
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 76</p>  <p>Backup and Recovery testing</p> <p>Recovery is the ability of an application to be restarted after failure.</p> <p>The process usually involves backing up to a point in the processing cycle where the integrity of the system is assured and then re-processing the transactions past the original point of failure.</p> <p>Example</p> <ul style="list-style-type: none"> Backup and recovery will be tested by halting the machine during stand-alone time and then following the recovery procedures. <p>77 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To define Performance testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Provide definition, purpose, and examples of Performance testing. 	

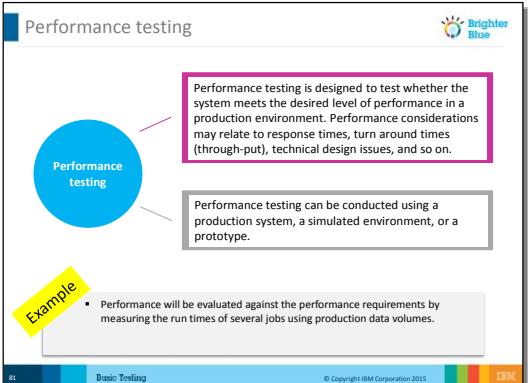
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 77</p>  <p>Example: The process of testing that the disaster recovery plans (also known as system contingency plans) and the associated business continuity plans work as specified.</p> <p>Risk server overload (denial of service): The online reservation system can handle only 500 users at one time, more than 500 users attempting to access the system may result in denial of service.</p>	<p>Purpose: To define Security testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition, purpose, and examples of Security testing. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Mitigation Plan: An extra server to be maintained so that it could share the traffic with the main server.</p> <p>Contingency Plan: On failure of the two servers to handle the load, route any new user to a third server showing a message for service not available.</p>		

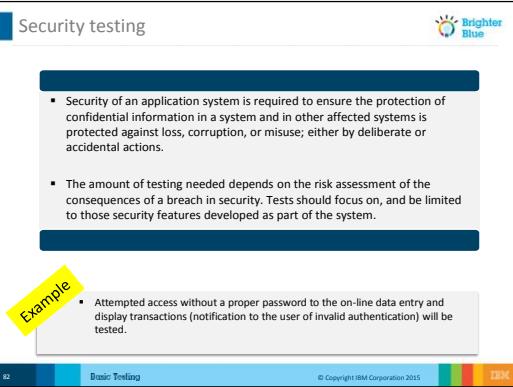
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 78</p>  <p>Example:</p> <ul style="list-style-type: none"> ▪ Verifying file labeling and protection functions are working properly. ▪ Determine system can run using document <p>Example: To verify that before application goes to production the operating procedures and staff can properly execute the application. Evaluation of process and execution of process.</p> <ul style="list-style-type: none"> ▪ Verifying file labeling and protection functions are working properly. ▪ Determine system can run using document 	<p>Purpose: To define Stress / Volume testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition, purpose, and examples of Stress / Volume testing. 	

Slide Content	Instructor Guide	Use this space for your notes

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 79</p>  <p>Job Stream testing</p> <p>Done as a part of operational testing (the test type not the test level, although this is still performed during operability testing):</p> <ul style="list-style-type: none"> ▪ Starts early and continues throughout all levels of testing ▪ Conformance to standards is checked in user acceptance and operability testing <p>Example</p> <ul style="list-style-type: none"> ▪ Payroll processing—a comprehensive set of records of salaried employees, hourly employees, and a merged set of these two should be used to test payroll processing. Run each of the periodic reporting job streams at least once. <p>80 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To understand Bottom-up testing</p> <p>Approximate Duration: 7 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Provide definition and purpose of Bottom-up testing. ▪ Enumerate and discuss the advantages and disadvantages of Bottom-up testing. ▪ Cite relevant examples. 	

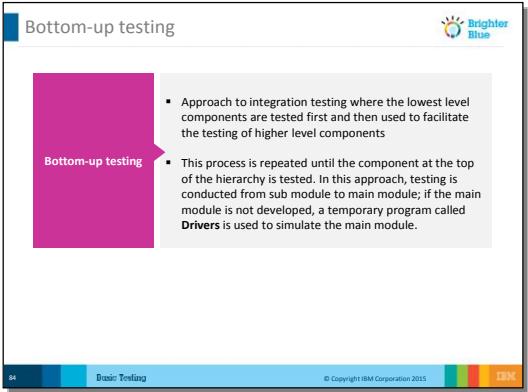
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 80</p>  <p>The slide content is as follows:</p> <ul style="list-style-type: none"> Performance testing (title) Performance testing (circle icon) Performance testing is designed to test whether the system meets the desired level of performance in a production environment. Performance considerations may relate to response times, turn around times (through-put), technical design issues, and so on. (Text in a callout box) Performance testing can be conducted using a production system, a simulated environment, or a prototype. (Text in a callout box) Example (Yellow callout box containing: • Performance will be evaluated against the performance requirements by measuring the run times of several jobs using production data volumes.) <p>Bottom navigation: 81, Basic Testing, Copyright IBM Corporation 2015, IBM logo.</p>	<p>Purpose: To apply knowledge of the different types of testing</p> <p>Approximate Duration: 10 mins</p> <p>Additional Materials or Pre-session prep tasks:</p> <ul style="list-style-type: none"> Easel sheets/paper Pens Instructor should have several situations/scenarios on hand to present to the class <p>What to cover:</p> <ul style="list-style-type: none"> Identify what type or kind of testing should be used in the following situations provided by the instructor <p>Instructions for the participant:</p> <ul style="list-style-type: none"> Break the class into small groups (2-3 depending on the number of participants) 	

Slide Content	Instructor Guide	Use this space for your notes
	<ul style="list-style-type: none">■ The instructor will provide different testing scenarios and each group of participants should identify the type of testing to be used. <p data-bbox="876 584 982 612">Debrief:</p> <ul style="list-style-type: none">■ Discuss why each correct testing type corresponds to a particular situation.	

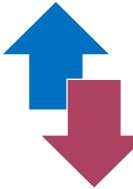
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 81</p>  <p>Example: Attempted access without a proper password to the on-line data entry and display transactions (notification to the user of invalid authentication) will be tested.</p> <p>Can system be penetrated by any hacking way? Test how well the system protects against unauthorized internal or external access. Check if system database is safe from external attacks.</p>	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants if they have any questions. ▪ Include any questions that will be addressed later in the course as parking lot items. ▪ Use this activity to recap the key takeaways from this module. ▪ You are the end of this module. The participants should now be able to: <ul style="list-style-type: none"> ○ Describe the different types of Functional Testing ○ Outline the different types of Structural Testing 	

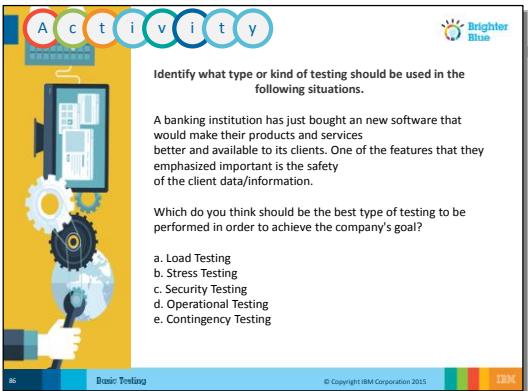
Slide Content	Instructor Guide	Use this space for your notes

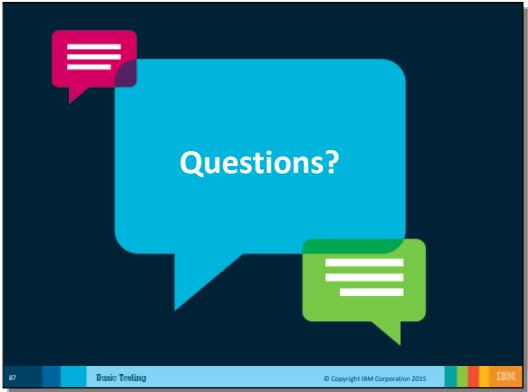
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 82</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Stress / Volume testing</p> <p>Stress testing is defined as the processing of a large number of transactions through the system in a defined period of time. It is done to measure the performance characteristics of the system under peak load conditions.</p> <p>Stress factors may apply to different aspects of the system, such as input transactions, report lines, internal tables, communications, computer processing capacity, throughput, disk space, I/O, and so on.</p> <p>Stress testing should not begin until the system functions are fully tested and stable. The need for Stress Testing must be identified in the Design Phase and should commence as soon as operationally stable system units are available.</p> <p>Example</p> <ul style="list-style-type: none"> System is stressed beyond its specifications to check how and when it fails. Performed under heavy load like putting large number beyond storage capacity, complex database queries, and continuous input to system or database load. </div>	<p>Purpose: To check knowledge of the participants for the topic covered</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Ask the participants the question on the slide. Treat the question as a poll—Ask them to raise their hands based on the answer. The correct answer is a) Static and Dynamic testing Explain the answer using the following explanation: 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 83</p>  <p>Bottom-up testing</p> <ul style="list-style-type: none"> ▪ Approach to integration testing where the lowest level components are tested first and then used to facilitate the testing of higher level components ▪ This process is repeated until the component at the top of the hierarchy is tested. In this approach, testing is conducted from sub module to main module; if the main module is not developed, a temporary program called Drivers is used to simulate the main module. <p>84 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To check knowledge of the participants for the topic covered</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll – Ask them to raise their hands based on the answer. ▪ The correct answer is C. To check that no unwanted changes were introduced to one part of the system as a result of making changes to another part of the system ▪ Explain the answer using the following explanation: As per definition--it is a type of software testing that seeks to uncover new software bugs, or regressions, in existing functional and non- 	

Slide Content	Instructor Guide	Use this space for your notes
	<p>functional areas of a system after changes such as enhancements, patches or configuration changes, have been made to them.</p>	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 84</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Bottom-up testing (continued)</p> <p></p> <p>Advantages:</p> <ul style="list-style-type: none"> ▪ It is advantageous if major flaws occur toward the bottom of the program. ▪ Test conditions are easier to create. ▪ Observation of test results is easier. <p>Disadvantages:</p> <ul style="list-style-type: none"> ▪ Driver Modules must be produced. ▪ The program as an entity does not exist until the last module is added. </div> <p>Example: For Unit Testing of “Sales Order Printing” program, a Driver program will have the code which will create Sales Order records using hardcoded data and then call “Sales Order Printing” program.</p>	<p>Purpose: To check knowledge of the participants for the topic covered</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll – Ask them to raise their hands based on the answer. ▪ The correct answer is D. White Box testing and Black Box testing 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 85</p>  <p>The slide features a yellow background with a central white box. At the top left is a blue bar with the word "Activity". At the top right is the Brighter Blue logo. Below the title, the text reads: "Identify what type or kind of testing should be used in the following situations." A paragraph follows: "A banking institution has just bought new software that would make their products and services better and available to its clients. One of the features that they emphasized is the safety of the client data/information." Below this, a question is posed: "Which do you think should be the best type of testing to be performed in order to achieve the company's goal?" A list of five options is provided: a. Load Testing, b. Stress Testing, c. Security Testing, d. Operational Testing, e. Contingency Testing. At the bottom left is a blue bar with the text "Basic Testing". At the bottom right is the IBM logo.</p> <p>Identify what type or kind of testing should be used in the following situations provided by the instructor:</p> <ul style="list-style-type: none"> ▪ Is the example given / provided require Functional or Structural testing? <p>The correct answer is C. Security Testing</p>		

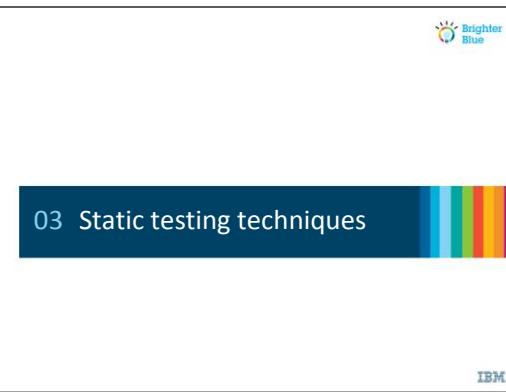
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 86</p>  <p>The slide features a dark blue background. In the center is a large light blue speech bubble containing the text "Questions?". To its left is a small pink speech bubble, and to its right is a small green speech bubble, both with horizontal lines inside. At the bottom of the slide is a navigation bar with several colored squares and the text "86 Basic Testing © Copyright IBM Corporation 2015 IBM".</p>		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 87</p> <div data-bbox="264 421 783 812"><p>Spot Quiz</p><p>01 What are the two types of testing?</p><p>A Static and Dynamic testing B Dynamic and Reviews testing C State Transition testing D Reviews and Inspection</p><p>Basic Testing Copyright IBM Corporation 2015 IBM</p></div>		

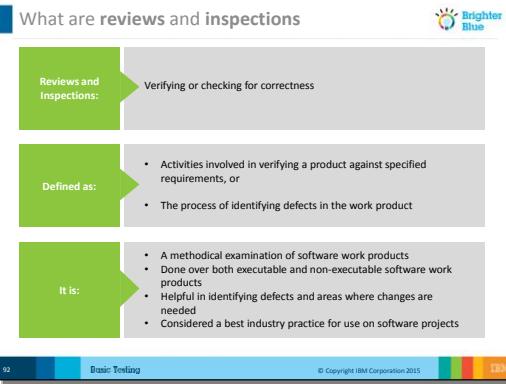
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 88</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Spot Quiz</p> <p>02 Which of the following is a purpose for Regression testing?</p> <ul style="list-style-type: none"> A To check that new functionality has been added or not B To check that the existing functionality has been changed C To check that no unwanted changes were introduced to one part of the system as a result of making changes to another part of the system <p>88 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>		

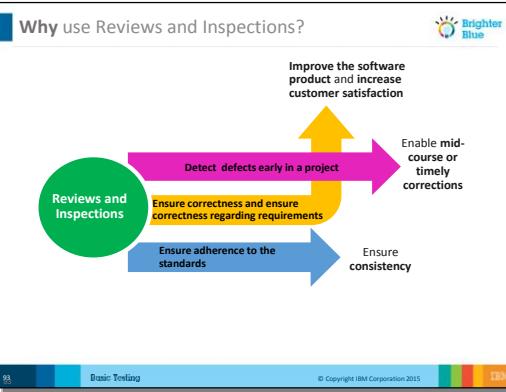
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 89</p>  <p>The slide content shows a 'Spot Quiz' interface. The question is: '03 Which one is not part of Static Testing?'. The options are: A. Reviews B. Inspections C. Walkthroughs D. White Box testing and Black Box testing</p> <p>At the bottom, there is a navigation bar with icons for back, forward, and search, followed by the text 'Basic Testing' and 'Copyright IBM Corporation 2015'.</p>		

Module 3: Types and Levels of Testing

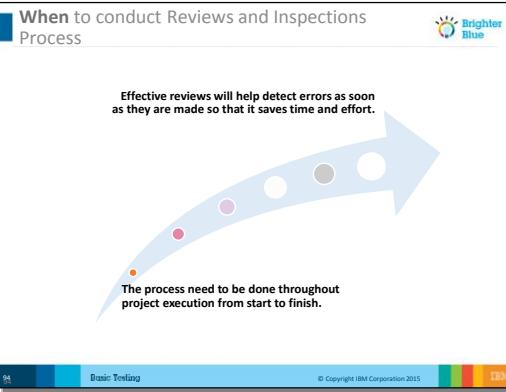
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 90</p>  <p>At the end of this module, you should be able to:</p> <ul style="list-style-type: none"> ▪ Recognize the features of reviews and inspections ▪ Recognize the benefits of reviews and inspections ▪ Recognize the steps in the reviews and inspection processes 	<ul style="list-style-type: none"> ▪ Purpose: To give an overview of Reviews and Inspections Process <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants about definition of Reviews and Inspections, when and how reviews and inspections are conducted. ▪ Introduce two real world scenarios ▪ Highlight how reviews and inspections are proactive methods of ensuring the success of projects. 	

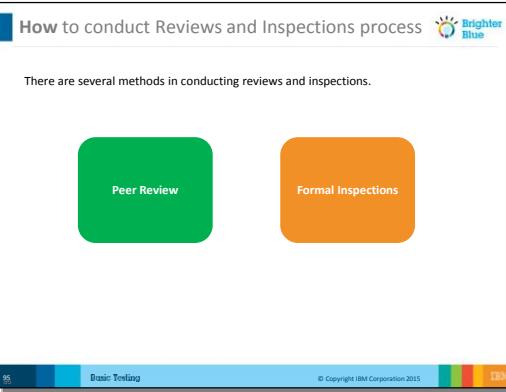
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ Show the importance of reviews and inspection through some real-life incidents▪ Compare peer and facilitation reviews▪ Recognize the key features of defect classification▪ Explain how Return on Investment (ROI) helps to justify the cost of reviews		

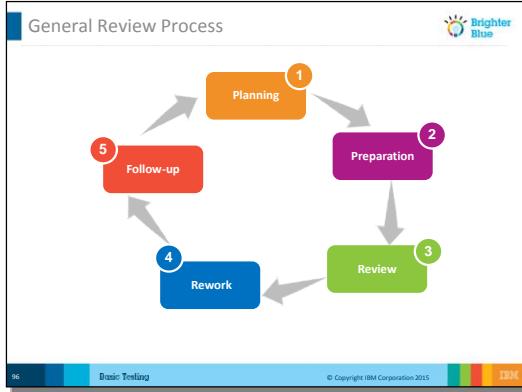
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 91</p>  <p>A methodical examination of software work products: Reviews and Inspections is a methodical examination of software work products generated at different phases of software development life cycle or modified during maintenance (for example, code change for a bug in an existing software).</p>	<p>Purpose: To define and explain reviews and inspections</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Define reviews and inspections. ▪ Explain the features of reviews and inspections: <ul style="list-style-type: none"> ○ Methodical software work product examination ○ Both executable and non-executable software work products covered ○ Helps identify defects and areas needing changes ○ Identified as the best industry practice 	

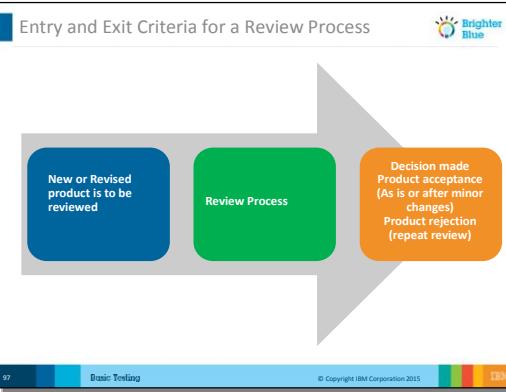
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 92</p>  <p>Why? It helps to:</p> <ul style="list-style-type: none"> • Detect defects early in a project so as to enable mid-course or timely corrections. • Ensure correctness and consistency with respect to requirements, thus improving the software product and increasing customer satisfaction. 	<p>Purpose : Explain the benefits of Reviews and Inspections</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants why we need to carry out reviews and inspections: <ul style="list-style-type: none"> ○ Early detection of defects ○ Ensured consistency and adherence to standards ○ Ensured correctness in all aspects including the requirements ▪ Cover the points detailed in the notes section of the slide. 	

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">• Ensure adherence to the standards (set by IBM or customer).		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 93</p> 	<p>Purpose : Explain when we need to conduct Reviews and Inspections</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Discuss how effective reviews help detect errors at an early stage which saves both effort and time. ▪ Tell the participants about the circumstances where we need to carry out reviews and inspections. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 94</p>  <p>There are several methods involved in conducting reviews and inspections; for example, peer review and formal inspections.</p>	<p>Purpose : Explain the methods for conducting Reviews and Inspections</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants about the methods of conducting reviews and inspections: <ul style="list-style-type: none"> ○ Peer review ○ Formal inspections 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 95</p>  <p>The following illustrates the general review process.</p>	<p>Purpose: To explain the general review process</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the general review process focusing on the stages: <ul style="list-style-type: none"> ○ Planning ○ Preparation ○ Review ○ Rework ○ Follow-up ▪ Illustrate the process with the help of a diagram so that the participants can better understand. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 96</p>  <p>The following diagram illustrates the entry and exit criteria for a review process.</p>	<p>Purpose: To explain the entry and exit criteria for a review process</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the entry and exit criteria for a review process. ▪ Illustrate the process with the help of diagram. 	

Slide Content	Instructor Guide	Use this space for your notes
Slide 97  <p>The slide shows two silhouettes of people, a man and a woman, facing each other. The text on the slide reads: "Tom and his wife Pam are busy preparing for Christmas. They decide that Tom would buy and set up the Christmas tree, while Pam is out shopping for the gifts." The slide is titled "Tom's Story: Setting up the Christmas Tree" and includes the Brighter Blue logo.</p>	<p>Purpose: To explain the importance of reviews and detecting errors early to save time and effort with a real world scenario.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Start by saying that this is a real life scenario where reviews would have helped ▪ Lead the participants through the conversation slide by slide ▪ Conclude the scenario as on the last slide 	

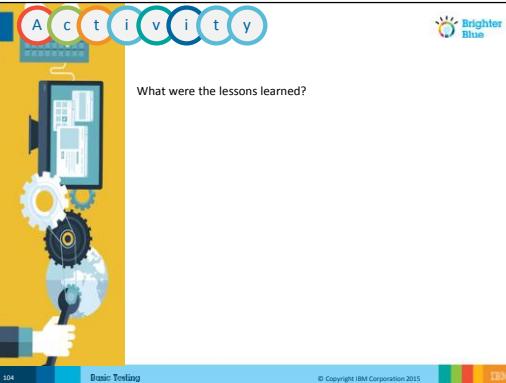
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 98</p>  <p>The slide shows two silhouettes of people. A speech bubble from the person on the right says: "Tom, so you'll buy a large Christmas tree and start setting up the star and lights along with the tree? I think we're going to need an extension cord for the lights as well." The slide is titled "Tom's Story: Setting up the Christmas Tree (Continued)". It includes the Brighter Blue logo and the IBM logo at the bottom.</p>	<p>Purpose: Use one scenario to let the participants realize that a client's request should be reviewed for a project.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Use one commonly-seen real life scenario and let the participants realize that a client's requests should be reviewed for a project. ▪ Take up the discussion from the previous slide. 	

Slide Content	Instructor Guide	Use this space for your notes
Slide 99 	<p>Purpose: Use one scenario to let the participants realize that a client's request should be reviewed for a project.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Use one commonly-seen real life scenario and let the participants realize that a client's requests should be reviewed for a project. ▪ Take up the discussion from the previous slide. ▪ 	

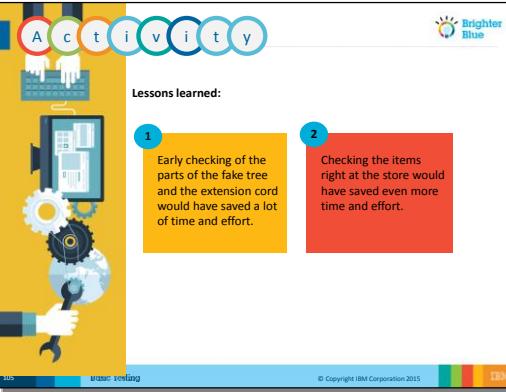
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 100</p>  <p>The slide content shows two silhouettes of people. A speech bubble from the person on the right says: "Once done with my shopping, I'll help you finish the decorations before evening. The kids will be delighted to see it when they're back home!" The slide is titled "Tom's Story: Setting up the Christmas Tree (Continued)". It includes the Brighter Blue logo and the IBM logo at the bottom.</p>	<p>Purpose: Use one scenario to let the participants realize that a client's request should be reviewed for a project.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Use one commonly-seen real life scenario and let the participants realize that a client's requests should be reviewed for a project. ▪ Take up the discussion from the previous slide. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 101</p>  <p>The slide shows two silhouetted figures, a man and a woman, facing each other. A speech bubble from the man says "Ok! Sounds like a plan!" The slide has a header "Tom's Story: Setting up the Christmas Tree (Continued)" and a footer with "101 Basic Testing © Copyright IBM Corporation 2015 IBM".</p>	<p>Purpose: Use one scenario to let the participants realize that a client's request should be reviewed for a project.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Use one commonly-seen real life scenario and let the participants realize that a client's requests should be reviewed for a project. ▪ Take up the discussion from the previous slide. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 102</p> <div style="border: 1px solid black; padding: 10px;"> <p>Tom's Story: Setting up the Christmas Tree (Continued)</p> <p>By evening, Tom has assembled the tree, and is almost done putting up the star and the lights when his wife and kids walk in.</p> <p>They are happy to see the tree, but Pam says "I really wanted to see a golden star and not a silver star".</p> <p>Tom then switches on the lights but they are not working. Since the lights are already on the tree, he gets a ladder and checks them one by one to make sure they are ok. He then finally has to remove the extension cord to check it, and he realizes there is a problem with the extension cord.</p> <p>Pam tries to place a gift near the base of the tree when she notices a crack on the stand at the base of the tree that is holding it up. No sooner than she points it out that</p> </div>	<p>Purpose: Use one scenario to let the participants realize that a client's request should be reviewed for a project.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Use one commonly-seen real life scenario and let the participants realize that a client's requests should be reviewed for a project. ▪ Take up the discussion from the previous slide. ▪ Conclude the story by pointing out to the problem that crops up. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 103</p>  <p>So what were the lessons learned?</p> <p>Lessons:</p> <ul style="list-style-type: none"> ▪ Had Tom checked the parts of the fake tree before assembling it and also the extension cord before connecting it, it would have saved him a lot of time and effort. Even then, he would still have to travel all the way back to the store to get it replaced (wasted time). ▪ Had Tom checked the parts of the fake tree, the lights, and the extension cord right at the 	<p>Approximate Duration: 10 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the question ▪ You can ask the groups to list them on flipcharts provided for each group ▪ Discuss the list from each group ▪ Summarize the lessons learned by showing the second slide <p>Purpose: To see if the participants are able identify the lessons learned from the scenario</p> <p>Instructions for the participants:</p> <ul style="list-style-type: none"> ▪ Ask the question to all the participants. ▪ Ask them to raise hand to provide their answers. ▪ Once a participant answers, ask how many of the others agree to him/her by raising hand. 	

Slide Content	Instructor Guide	Use this space for your notes
store, he would have saved even more time and effort.	Debrief: <ul style="list-style-type: none">▪ Ask the participants about their experience of this activity.▪ Ask the participants how much the lessons learned will help them in real life situation.	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 104</p>  <p>Lessons learned:</p> <ul style="list-style-type: none"> 1 Early checking of the parts of the fake tree and the extension cord would have saved a lot of time and effort. 2 Checking the items right at the store would have saved even more time and effort. 	<p>Purpose: To summarize the points discussed in the previous slide</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Discuss the list from each group ▪ Summarize the lessons learned 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 105</p> <div data-bbox="255 421 777 816" style="background-color: #f0f0f0; padding: 10px;"> <p>Translating the real world scenario into project scenario</p> <p>The assembling of the Christmas tree is similar to a software project.</p> <p>Reviews are required to ensure that IBM's understanding matches with the client's specifications.</p> <p>The code is developed inline with the design which, in turn, is produced inline with the requirements gathered.</p> <p>If the requirements are gathered wrong, the defect is passed on to the design, and if there is an error in the design, it is also reflected in the code.</p> <p>In fact, defective parts, when assembled, do not function as a whole and a great deal of effort is wasted on detecting the source of the defect.</p> <p>Thus, we see the importance of reviews.</p> </div> <p>105 Basic Testing © Copyright IBM Corporation 2015</p> <ul style="list-style-type: none"> ▪ The assembling of the Christmas tree is similar to a software project. Pam giving directions to Tom is similar to a client specifying his requirements to IBM. Pam is unhappy that Tom bought a silver star instead of a gold one. ▪ Similarly, when clients specify requirements, reviews are required to ensure that IBM's understanding matches with the client's specifications. ▪ The different tree parts, lights, and extension cord are similar to different blocks of code that 	<p>Purpose: To change the real world scenario into project scenario</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Translate the real world scenario into project scenario. ▪ Discuss why conducting reviews and detecting errors at each stage is important to save time and effort. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>developers might produce. The code is developed in line with the design which in turn is produced in line with the requirements gathered.</p> <ul style="list-style-type: none"> ▪ If the requirements are gathered wrong, the defect is passed on to the design, and if there is an error in the design, it is also reflected in the code. So when the code is tested, desired results are not achieved. ▪ In fact, defective parts, when assembled, do not function as a whole, and a great deal of effort is wasted on detecting the source of the defect, that is, is it a defect in the code or a defect in the design or a defect in the requirements gathered? ▪ Thus, we see the importance of reviews and also the importance of detecting errors as soon as they are made. 		

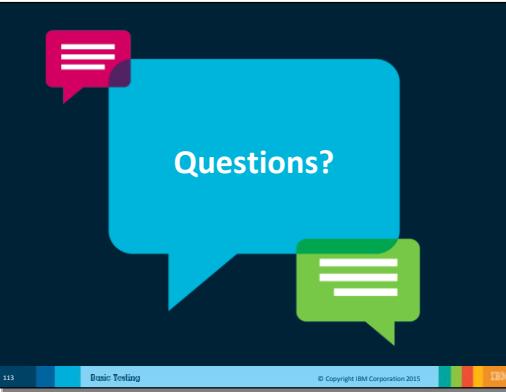
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 106</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>The Delhi Metro Mishap</p> <div style="display: flex; align-items: center;"> <div style="flex: 1; padding-right: 20px;"> <ul style="list-style-type: none"> ▪ Lack of proper inspection caused a major mishap at Delhi Metro rail site. The committee found out that there was a deficiency in the design of the cantilever arm and that the concrete did not have adequate strength due to lack of its adequate curing. ▪ Six persons were killed when an under-construction over-bridge of Delhi Metro collapsed in Zamarudpur area of South Delhi. </div> <div style="flex: 1;">  </div> </div> <p style="font-size: small; color: #ccc; margin-top: 10px;">107 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Purpose: To explain the importance of reviews and inspections with a real world scenario</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Dramatize the story ▪ Explain the reason and how it could have been avoided ▪ Encourage the learners to participate in a discussion 	

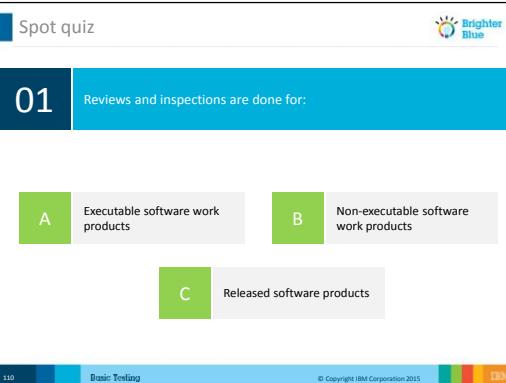
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 107</p>  <ul style="list-style-type: none"> ▪ The main reason of such accidents is lack of supervision, which leads to poor quality construction. ▪ There are certain operating procedures which have to be followed at every step of construction and inspection. As these types of projects depend upon team work, it is the moral duty of everyone, either director or laborer, to not compromise on the quality and bypass inspection process. 	<p>Purpose: To explain the importance of reviews and inspections with a real world scenario</p> <p>Approximate Duration: 3 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Dramatize the story ▪ Explain the reason and how it could have been avoided ▪ Encourage the learners to participate in a discussion 	

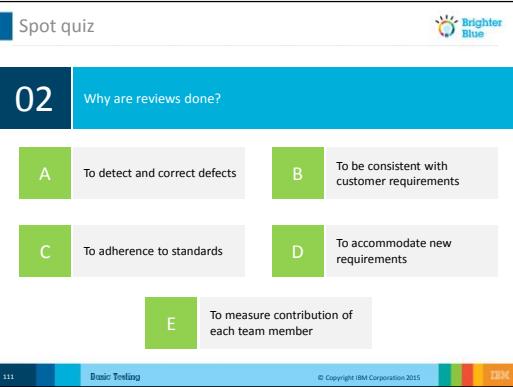
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ Since Gammon and DMRC had bypassed certain checks and inspection processes, this disaster occurred.		

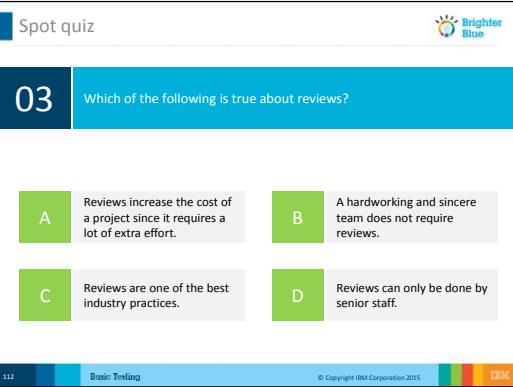
Slide Content	Instructor Guide	Use this space for your notes								
<p>Slide 108</p> <div data-bbox="255 421 777 812"> <p>Myths about Reviews and Inspections (continued) </p> <table border="1" data-bbox="333 514 686 742"> <thead> <tr> <th>Myth</th> <th>Reality</th> </tr> </thead> <tbody> <tr> <td>Reviews and inspections require a lot of extra effort, and thus increase the cost of a project.</td> <td>If reviews are done in a timely manner and by members who are well-versed with the product being reviewed, it requires minimal effort.</td> </tr> <tr> <td>Hard work alone results in quality. Everyone always tries to produce high quality.</td> <td>Even if everyone genuinely works hard to produce high quality products, manual error is always possible.</td> </tr> <tr> <td>Reviews and inspections can be done only by senior staff.</td> <td>Anyone who is well-versed about the product being reviewed can do the reviews.</td> </tr> </tbody> </table> <p>108 Basic Testing © Copyright IBM Corporation 2015 </p> </div> <p>Reality:</p> <ul style="list-style-type: none"> ▪ If reviews are done in a timely manner and by members who are well-versed with the product being reviewed, it requires minimal effort. No reviews result in defects and rework taking even more time and effort to make fixes. ▪ Even if everyone genuinely works hard to produce high quality products, manual error is always possible. Also, it is easy to miss defects when we continuously look at the same piece of code. A peer might be able to catch it easily. 	Myth	Reality	Reviews and inspections require a lot of extra effort, and thus increase the cost of a project.	If reviews are done in a timely manner and by members who are well-versed with the product being reviewed, it requires minimal effort.	Hard work alone results in quality. Everyone always tries to produce high quality.	Even if everyone genuinely works hard to produce high quality products, manual error is always possible.	Reviews and inspections can be done only by senior staff.	Anyone who is well-versed about the product being reviewed can do the reviews.	<p>Purpose: To see if the participants are able identify the realities about reviews and inspections</p> <p>Approximate Duration: 10 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants the myths about reviews and inspections. ▪ Ask them to agree or disagree ▪ Compare between the myths and the realities. 	
Myth	Reality									
Reviews and inspections require a lot of extra effort, and thus increase the cost of a project.	If reviews are done in a timely manner and by members who are well-versed with the product being reviewed, it requires minimal effort.									
Hard work alone results in quality. Everyone always tries to produce high quality.	Even if everyone genuinely works hard to produce high quality products, manual error is always possible.									
Reviews and inspections can be done only by senior staff.	Anyone who is well-versed about the product being reviewed can do the reviews.									

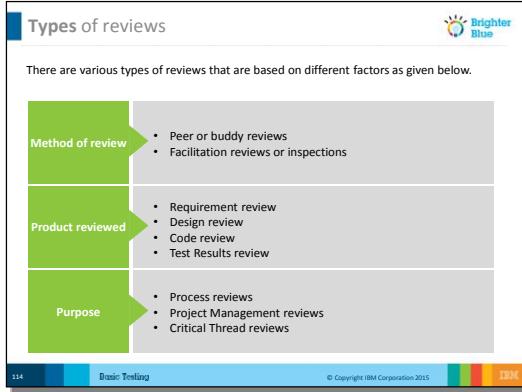
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ Anyone who is well-versed about the product being reviewed can do the reviews.		

Slide Content	Instructor Guide	Use this space for your notes
Slide 109 	<p>Purpose: To break the monotony with an interactive spot quiz</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is C. Reviews are one of the best industry practices. 	

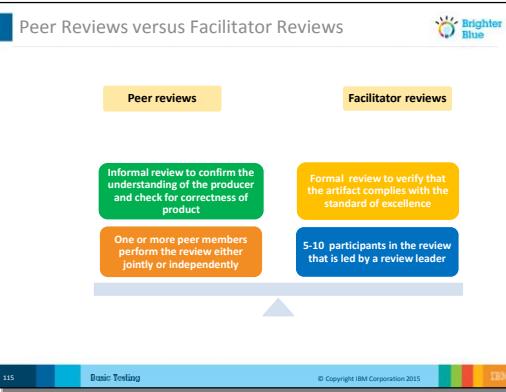
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 110</p>  <p>The slide content shows a 'Spot quiz' section with the question 'Reviews and inspections are done for:' followed by three options: A) Executable software work products, B) Non-executable software work products, and C) Released software products.</p>	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants if they have any questions. ▪ Include any questions that will be addressed later in the course as parking lot items. ▪ Use this activity to recap the key takeaways from this module. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 111</p>  <p>02 Why are reviews done?</p> <p>A To detect and correct defects B To be consistent with customer requirements</p> <p>C To adherence to standards D To accommodate new requirements</p> <p>E To measure contribution of each team member</p> <p>111 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To break the monotony with an interactive spot quiz</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ This question has multiple correct answers. The correct answers are: <ul style="list-style-type: none"> • Executable software work products • Non-executable software work products 	

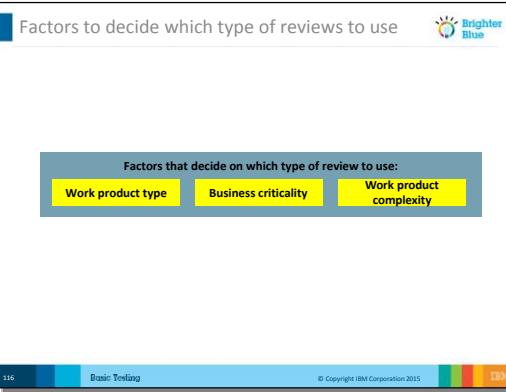
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 111</p>  <p>03 Which of the following is true about reviews?</p> <p>A Reviews increase the cost of a project since it requires a lot of extra effort. B A hardworking and sincere team does not require reviews. C Reviews are one of the best industry practices. D Reviews can only be done by senior staff.</p> <p>111 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To break the monotony with an interactive spot quiz</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ This question has multiple correct answers. The correct answers are: A. Detect and correct defects B. Ensure consistency with customer requirements C. Ensure adherence to standards 	

Slide Content	Instructor Guide	Use this space for your notes															
<p>Slide 113</p>  <p>The slide contains the following text and list:</p> <p>Types of reviews</p> <p>There are various types of reviews that are based on different factors as given below.</p> <table border="1"> <thead> <tr> <th>Method of review</th> <th>Peer or buddy reviews</th> <th>Facilitation reviews or inspections</th> </tr> </thead> <tbody> <tr> <th>Product reviewed</th> <td>Requirement review</td> <td>Design review</td> </tr> <tr> <th>Purpose</th> <td>Code review</td> <td>Test Results review</td> </tr> <tr> <th></th> <td>Process reviews</td> <td>Project Management reviews</td> </tr> <tr> <th></th> <td>Critical Thread reviews</td> <td></td> </tr> </tbody> </table> <p>There are many types of reviews based on different factors. A few are mentioned here:</p> <p>Based on method of review:</p> <ul style="list-style-type: none"> • Peer or buddy reviews • Facilitation reviews or inspections <p>Based on product reviewed:</p> <ul style="list-style-type: none"> • Requirement review • Design review 	Method of review	Peer or buddy reviews	Facilitation reviews or inspections	Product reviewed	Requirement review	Design review	Purpose	Code review	Test Results review		Process reviews	Project Management reviews		Critical Thread reviews		<p>Purpose: To list and explain the different types of reviews</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Categorize various kinds of reviews based on different factors: <ul style="list-style-type: none"> ○ Method of review ○ Product reviewed ○ Purpose 	
Method of review	Peer or buddy reviews	Facilitation reviews or inspections															
Product reviewed	Requirement review	Design review															
Purpose	Code review	Test Results review															
	Process reviews	Project Management reviews															
	Critical Thread reviews																

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">• Code review• Test Results review <p>Based on purpose:</p> <ul style="list-style-type: none">• Process reviews (to check compliance to organization processes)• Project Management Reviews (to review project health and check risks)• Critical Thread Reviews (meetings to discuss and review topics on people, process, and performance)		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 114</p>  <p>Peer reviews</p> <ul style="list-style-type: none"> Informal review to confirm the understanding of the producer and check for correctness of product One or more peer members perform the review either jointly or independently <p>Facilitator reviews</p> <ul style="list-style-type: none"> Formal review to verify that the artifact complies with the standard of excellence 5-10 participants in the review that is led by a review leader <p>▪ Peer reviews</p> <ul style="list-style-type: none"> Peer or buddy reviews (walkthroughs) are informal reviews used to confirm the understanding of the producer and check for correctness of product being reviewed. One or more peer members (with expertise in the subject of the product to be reviewed) 	<p>Purpose: To distinguish between peer reviews and facilitator reviews</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Distinguish between peer reviews and facilitator reviews: <ul style="list-style-type: none"> Peer reviews are informal while facilitator reviews are formal One or two members can perform peer review while for facilitator reviews 5-10 people are needed Explain the factors to decide on which type of review to use. 	

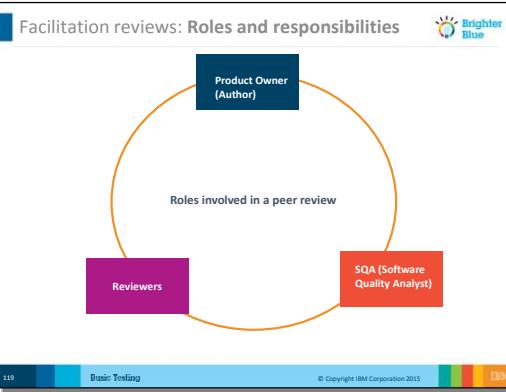
Slide Content	Instructor Guide	Use this space for your notes
<p>perform the review either jointly or independently.</p> <ul style="list-style-type: none">▪ Facilitator Reviews<ul style="list-style-type: none">○ Facilitator reviews (inspection) are formal reviews used to verify that the artifact compiles with the standard of excellence.○ A team of not less than 5 percent and not more than 10 (each with specific defined roles) participates in the review that is led by a review leader.		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 115</p>  <p>Work product type - Design document, code, or any other</p>	<p>Purpose: Understand the differences between Peer Reviews and Facilitation Reviews</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ■ List the factors that help decide on the type of review to use: <ul style="list-style-type: none"> ○ Work product type ○ Business criticality ○ Work product complexity 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 116</p>  <p>Peer reviews:</p> <ul style="list-style-type: none"> ▪ This is a less formal verification technique - This is a less formal verification technique in which a technical peer analyzes or improves the quality of the original work product, for example, by finding defects or proposing a more optimal solution. ▪ It is the author who initiates the session - Since peer reviews cater to the needs of the producer 	<p>Purpose: To explain the characteristics of peer reviews</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the characteristics of peer reviews: <ul style="list-style-type: none"> ○ Author-initiated session ○ Formal verification technique ○ Several peer reviews in every software development lifecycle activity 	

Slide Content	Instructor Guide	Use this space for your notes
<p>or author of the software artifact (in acquiring superior knowledge of all aspects of it), it is the author who initiates the session.</p> <ul style="list-style-type: none">▪ There may be several peer reviews in each software development life cycle activity - There may be several peer reviews in each software development life cycle activity and they yield open issues and action items. While these issues and action items may be tracked to closure, the only measurement taken from these reviews is a count of the number of peer reviews held along with effort spent and process improvements identified.		

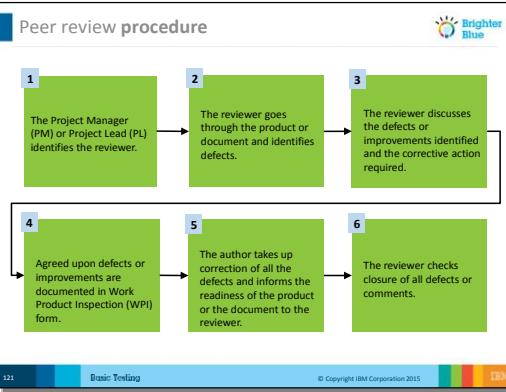
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 117</p> 	<p>Purpose: To explain the expected end results of peer reviews</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the expected end results of peer reviews: <ul style="list-style-type: none"> ○ Agreement on the taken approaches, engineering practices applied and product ○ Complete and correct capabilities and features obtained 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 118</p>  <p>The diagram illustrates the roles involved in a peer review. It features three colored boxes: a dark blue box at the top labeled 'Product Owner (Author)', a purple box on the left labeled 'Reviewers', and a red box on the right labeled 'SQA (Software Quality Analyst)'. An orange circle surrounds all three boxes, with the text 'Roles involved in a peer review' written inside it. The slide has a navigation bar at the bottom with icons for back, forward, and search.</p>	<p>Purpose: To list the roles involved in a peer review</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ■ List the roles involved in a peer review: <ul style="list-style-type: none"> ○ Product owner or author ○ SQA or Software Quality Analyst ○ Reviewers 	

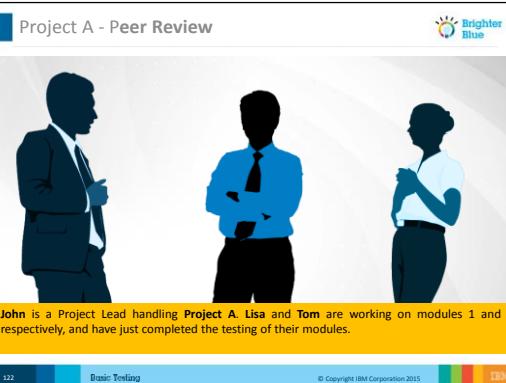
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 119</p>  <p>Product Owner (Author):</p> <ul style="list-style-type: none"> ▪ Initiates and schedules reviews ▪ Ensures adherence to review process ▪ Identifies reviewers and distributes the product ▪ Ensures rework is carried out ▪ Fills in quality records <p>Reviewers:</p> <ul style="list-style-type: none"> ▪ Documents the review findings and completes the "Review Summary Report" ▪ Reviews the product ▪ Can also approve the product <p>SQA (Software Quality Analyst):</p> <ul style="list-style-type: none"> ▪ Reviews the product and communicates the comments to the review leader ▪ Tracks the rework and resolution list to closure ▪ Signs off the review summary report <p>Product Owner (Author):</p> <ul style="list-style-type: none"> ▪ Initiating the review process and scheduling reviews ▪ Ensuring the review process is adhered to ▪ Identifying reviewers and distributing the product for review. The owner may seek help from his manager in identification. ▪ Ensuring any rework as a result of the review is carried out 	<p>Purpose: To describe the roles and responsibilities of the product owner, reviewers, and software quality analyst in peer review</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Discuss about the three entities found in peer review: <ul style="list-style-type: none"> ○ Product owner or author ○ Reviewers ○ SQA ▪ Describe the roles and responsibilities of each of these entities. 	

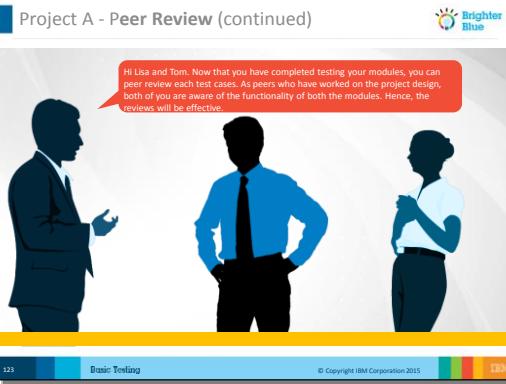
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> ▪ Filing the quality records that are generated during the review process as objective evidence of having carried out the review <p>Reviewers:</p> <ul style="list-style-type: none"> ▪ Documenting the review findings and completing the 'Review Summary Report' ▪ Reviewing the product ▪ Can also approve the product <p>SQA (Software Quality Analyst):</p> <ul style="list-style-type: none"> ▪ Where applicable, reviewing the product and communicating the comments to the review leader ▪ Where applicable, tracking the rework and resolution list to closure ▪ Signing off the review summary report after ensuring the defect / resolutions list is closed and the summary report is complete 		

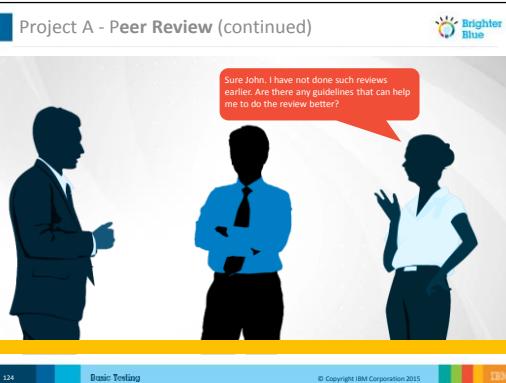
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Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 120</p>  <ul style="list-style-type: none"> • The Project Manager (PM) or Project Lead (PL) identifies the reviewer based on the size, complexity, and importance of the product or document to be reviewed. • The reviewer goes through the product or document and identifies defects based on appropriate checklists or specifications or standards. 	<p>Purpose: To describe the peer review procedure</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe the peer review procedure by focusing on each of the steps: <ul style="list-style-type: none"> Identification of reviewer Review of the product to identify the defects Discussion of defects or required corrective actions and improvements Documentation of agreed upon defects and improvements Correction of defects Closure of all comments and defects 	

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> •The reviewer discusses the defects or improvements identified, the corrective action required, and provides clarifications if any. •Once the defects or improvements are agreed upon, they are documented in the Work Product Inspection (WPI) form. It is the responsibility of the PM or PL to ensure that the reviews are conducted, results documented, and the defect corrections are carried out. •The author takes up the correction of all the defects identified to be corrected and informs the readiness of the product or the document to the reviewer. •If re-review is required, another iteration of review is done, but if the review result requires only verification of the closure of defects or comments, the reviewer checks whether all defects have been closed. 		

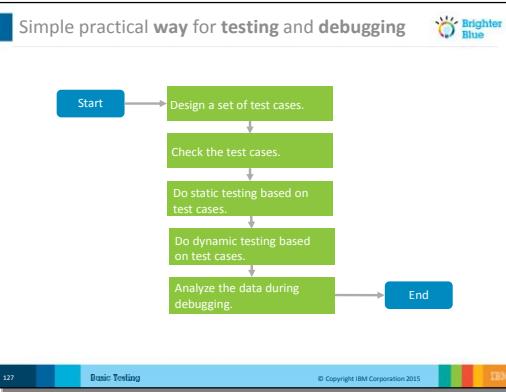
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 121</p>  <p>Project A - Peer Review</p> <p>John is a Project Lead handling Project A. Lisa and Tom are working on modules 1 and 2 respectively, and have just completed the testing of their modules.</p> <p>121 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To explain the importance of peer review with a real world scenario</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the scenario. ▪ Discuss the outcome. 	

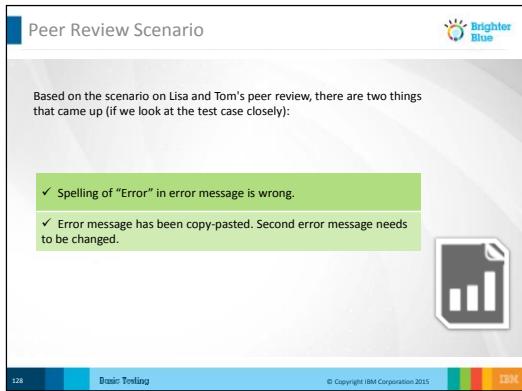
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 122</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Project A - Peer Review (continued)</p>  <p>Hi Lisa and Tom.. Now that you have completed testing your modules, you can peer review each test cases. As peers who have worked on the project design, both of you are aware of the functionality of both the modules. Hence, the reviews will be effective.</p> <p>122 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Purpose: Use one Peer Review scenario to understand how peer review takes place and see the results.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand one Peer Review scenario ▪ Find errors and solution 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 123</p>  <p>The slide shows three stylized human figures in a discussion. One figure in a blue shirt has a speech bubble that says: "Sure John. I have not done such reviews earlier. Are there any guidelines that can help me to do the review better?" The slide is titled "Project A - Peer Review (continued)" and includes the Brighter Blue logo.</p>	<p>Purpose: Use one Peer Review scenario to understand how peer review takes place and see the results</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand one Peer Review scenario. ▪ Find errors and solution. ▪ Continue the scenario from the previous slide. 	

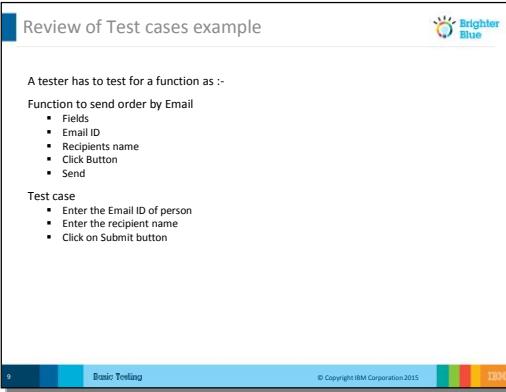
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 124</p> 	<p>Purpose: Use one Peer Review scenario to understand how peer review takes place and see the results</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand one Peer Review scenario. ▪ Find errors and solution. ▪ Continue the scenario from the previous slide. 	

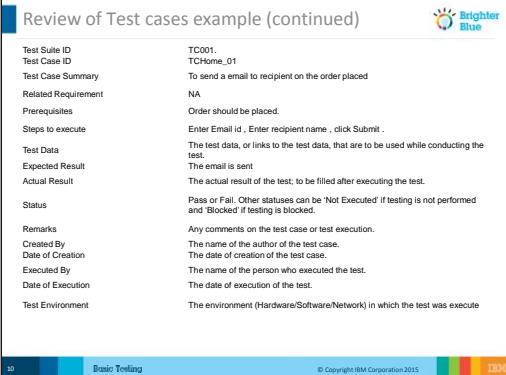
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 125</p> 	<p>Purpose: Use one Peer Review scenario to understand how peer review takes place and see the results</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand one Peer Review scenario. ▪ Find errors and solution. ▪ Continue the scenario from the previous slide. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 126</p>  <pre> graph TD Start([Start]) --> Design[Design a set of test cases.] Design --> Check[Check the test cases.] Check --> Static[Do static testing based on test cases.] Static --> Dynamic[Do dynamic testing based on test cases.] Dynamic --> Analyze[Analyze the data during debugging.] Analyze --> End([End]) </pre>	<p>Purpose: To explain how to test and debug simply and practically</p> <p>Approximate Duration: 2 mins</p> <p>What to cover: Show the diagram that points out a simple practical way for testing and debugging.</p>	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 127</p> <div data-bbox="255 421 777 812">  <p>Peer Review Scenario</p> <p>Based on the scenario on Lisa and Tom's peer review, there are two things that came up (if we look at the test case closely):</p> <ul style="list-style-type: none"> ✓ Spelling of "Error" in error message is wrong. ✓ Error message has been copy-pasted. Second error message needs to be changed. <p>127 Basic Testing © Copyright IBM Corporation 2015</p> </div> <p>Based on the scenario on Lisa and Tom's peer review, there are two things that came up (if we look at the code closely):</p> <ul style="list-style-type: none"> • Spelling of 'Error' in error message is wrong. • Error message has been copy-pasted. Second error message needs to be changed. 	<p>Purpose: List errors that the participants could find</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ List errors that the participants could find: <ul style="list-style-type: none"> ○ "Error" spelling wrong ○ Instead of copy-pasted error message a new error message must be given 	

Slide Content	Instructor Guide	Use this space for your notes

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 128</p>  <p>Review of Test cases example</p> <p>A tester has to test for a function as :-</p> <p>Function to send order by Email</p> <ul style="list-style-type: none"> ▪ Fields ▪ Email ID ▪ Recipients name ▪ Click Button ▪ Send <p>Test case</p> <ul style="list-style-type: none"> ▪ Enter the Email ID of person ▪ Enter the recipient name ▪ Click on Submit button <p>Basic Testing © Copyright IBM Corporation 2015</p>	<p>Purpose: To give an overview of facilitation reviews. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Give an overview of facilitation reviews: <ul style="list-style-type: none"> ○ It is the most rigorous form of review ○ It is the exit criteria in lifecycle activity 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 129</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Review of Test cases example (continued)</p>  <p>Test Suite ID: TC001 Test Case ID: TCHome_01 Test Case Summary: To send a email to recipient on the order placed Related Requirement: NA Prerequisites: Order should be placed. Steps to execute: Enter Email id , Enter recipient name , click Submit Test Data: The test data, or links to the test data, that are to be used while conducting the test. Expected Result: The actual result of the test, to be filled after executing the test. Actual Result: The Pass or Fail. Other statuses can be 'Not Executed' if testing is not performed and 'Blocked' if testing is blocked. Status: Any comments on the test case or test execution. Remarks: The name of the author of the test case. Created By: The date of creation of the test case. Executed By: The name of the person who executed the test. Date of Execution: The date of the execution of the test. Test Environment: The environment (Hardware/Software/Network) in which the test was executed.</p> <p>10 Basic Testing © Copyright IBM Corporation 2015</p> </div>	<p>Purpose: To explain facilitation review characteristics. Conduct a walkthrough of the documents provided as supported resources.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain facilitation review characteristics: <ul style="list-style-type: none"> ○ Done by technical people ○ Consists of well-defined processes and roles ○ Preparation of reviewers in advance ○ Focus on identification of problems ○ Recording of review data to monitor effectiveness 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 130</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Review comments</p>  <p>Spelling Recipient is not correct in the test case summary and steps to test. Expected result should always be having "Should" added – like –"Email should be sent to recipient."</p> <p>130 Basic Testing © Copyright IBM Corporation 2015</p> </div>	<p>Purpose: To list the roles involved in a facilitation review</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ■ List the roles involved in a facilitation review: <ul style="list-style-type: none"> ○ Author or producer ○ Product owner ○ Recorder ○ Reader ○ Reviewers or inspectors ○ Review leader or inspection leader 	

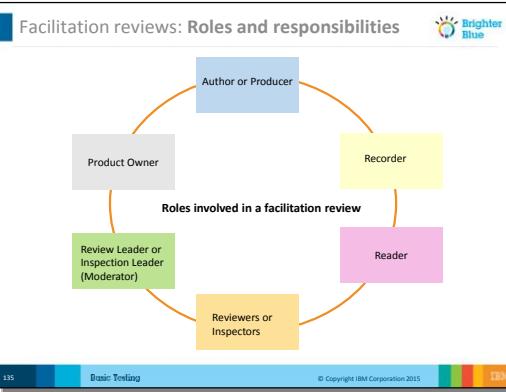
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 131</p> <div data-bbox="255 421 777 816">  <p>Overview of Facilitation reviews</p> <p>Facilitation Reviews or Inspections are the most rigorous form of reviews which involve structured formal reviews.</p> <p>In a lifecycle activity, the software inspection is the exit criteria.</p> <p>131 Basic Testing © Copyright IBM Corporation 2015</p> </div> <ul style="list-style-type: none"> ▪ Facilitation Reviews or Inspections (also called Fagan's Review) are the most rigorous form of reviews which involve structured formal reviews done by a group of technical personnel who analyze or improve the quality of the original work product as well as the quality of the method. 	<p>Purpose: To explain the responsibilities of the roles involved in facilitation reviews</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Discuss the responsibilities of each involved role in detail including that of: <ul style="list-style-type: none"> ○ Author or producer ○ Product owner ○ Reader 	

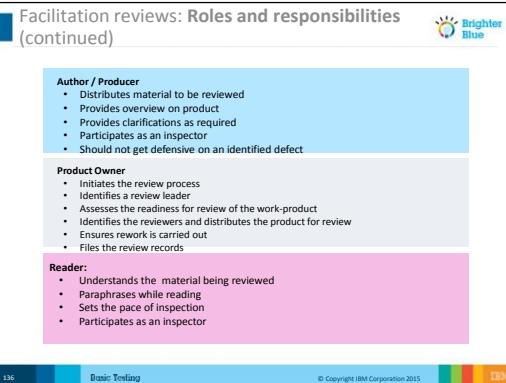
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">■ In a lifecycle activity, the software inspection is the exit criteria or gate that concludes the activity.		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 132</p>  <p>Characteristics of Facilitation reviews</p> <ul style="list-style-type: none"> They are done by technical people for technical people. They consist of structured, well defined processes with well-defined roles for participants. Reviewers are prepared in advance, and clarifications are obtained before the meeting. 	<p>Purpose: To explain the responsibilities of the roles involved in facilitation reviews</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Continue the discussion from the previous slide. Discuss the responsibilities of each involved role in detail including that of: <ul style="list-style-type: none"> Reviewers or inspectors Review leader or inspection leader Recorder 	

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">• Focus is on identifying problems and not resolving them.• Review data from these reviews is recorded and used for monitoring effectiveness of the review procedure.		

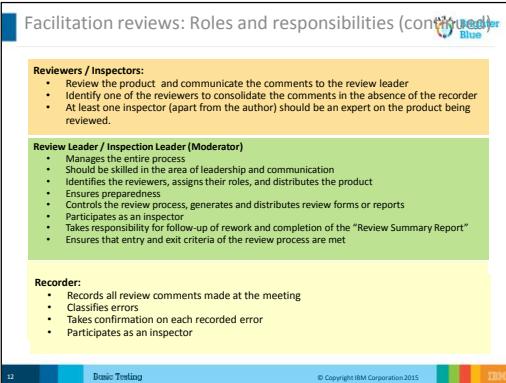
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 133</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Fagan's Inspection / Review</p> <p>A Fagan inspection is a structured process of trying to find defects in development /Testing documents such as programming code, specifications, designs , Testing and others during various phases of the software development process. It is named after Michael Fagan who is credited with being the inventor of formal software inspections.</p> <p>Examples of activities for which Fagan Inspection can be used are:</p> <ul style="list-style-type: none"> ▪ Requirement specification ▪ Software/Information System architecture (for example DYA) ▪ Programming (for example for iterations in XP or DSDM) ▪ Software testing (for example when creating test scripts) </div>	<p>Purpose: To describe the facilitation review process</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Describe the facilitation review process steps: <ul style="list-style-type: none"> ○ Planning ○ Orientation preparation ○ Review meeting ○ Rework ○ Verify ▪ Describe the process with the help of the flow diagram. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 134</p>  <pre> graph TD AP[Author or Producer] --> PO[Product Owner] AP --> R[Recorder] PO --> RL[Review Leader or Inspection Leader Moderator] RL --> RI[Reviewers or Inspectors] RI --> R RI --> R R --> Reader[Reader] </pre> <p>Facilitation reviews: Roles and responsibilities</p> <p>Author or Producer</p> <p>Product Owner</p> <p>Recorder</p> <p>Review Leader or Inspection Leader (Moderator)</p> <p>Reviewers or Inspectors</p> <p>Reader</p> <p>135 Basic Testing © Copyright IBM Corporation 2015</p>	<p>Purpose: To explain when to prefer facilitation review over peer review with a real world scenario</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the scenario. ▪ Ask the learners if they can relate to the situation. ▪ Encourage them to share their views on why a facilitation review is being preferred here 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 135</p> <div style="border: 1px solid black; padding: 10px;"> <p>Facilitation reviews: Roles and responsibilities (continued)</p>  <p>Author / Producer:</p> <ul style="list-style-type: none"> Distributes material to be reviewed Provides overview on product Provides clarifications as required Participates as an inspector Should not get defensive on an identified defect <p>Product Owner:</p> <ul style="list-style-type: none"> Initiates the review process Identifies a review leader Assesses the readiness for review of the work-product Identifies the reviewers and distributes the product for review Ensures rework is carried out Files the review records <p>Reader:</p> <ul style="list-style-type: none"> Understands the material being reviewed Paraphrases while reading Sets the pace of inspection Participates as an inspector </div> <p>Author / Producer:</p> <ul style="list-style-type: none"> Distributes material to be reviewed Provides overview on product Provides clarifications as required Participates as an inspector Should not get defensive on an identified defect <p>Product Owner:</p> <ul style="list-style-type: none"> Initiates the review process 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> Understand how facilitation review is conducted. 	

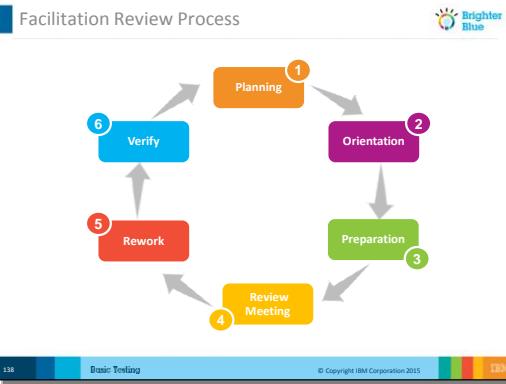
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> • Identifies a review leader; may seek help from his manager in identifying a review leader • Assesses the readiness for review of the work-product along with the review leader • Identifies the reviewers and distributes the product for review along with the review leader • Ensures that any rework as a result of the review is carried out • Files the review records that are generated during the review process as objective evidence of having carried out the review • Review Leader / Inspection Leader (Moderator): • Manages the entire process and ensures that the review process is adhered to • Should be skilled in the area of leadership and communication, and be impartial • Identifies the reviewers and assigns their roles, distributes the product and related documents • Ensures preparedness before the review 		

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">• Controls the pace of review meetings, moderates the review, and also generates and distributes review forms or reports• Participates as an inspector• Takes responsibility for follow-up of rework and completion of the 'Review Summary Report'• Ensures that entry and exit criteria of the review process are met		

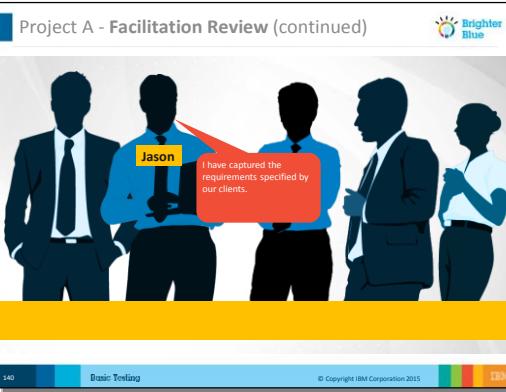
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 136</p>  <p>Reviewers / Inspectors:</p> <ul style="list-style-type: none"> • Review the product and communicate the comments to the review leader • Identify one of the reviewers to consolidate the comments in the absence of the recorder • At least one inspector (apart from the author) should be an expert on the product being reviewed. <p>Review Leader / Inspection Leader (Moderator)</p> <ul style="list-style-type: none"> • Manages the entire process • Sets the agenda in the area of leadership and communication • Identifies the reviewers, assigns their roles, and distributes the product • Ensures preparedness • Controls the review process, generates and distributes review forms or reports • Participates as an inspector • Takes responsibility for follow-up of rework and completion of the "Review Summary Report" • Ensures that entry and exit criteria of the review process are met <p>Recorder:</p> <ul style="list-style-type: none"> • Records all review comments made at the meeting • Classifies errors • Takes confirmation on each recorded error • Participates as an inspector <p>12 Basic Testing © Copyright IBM Corporation 2015 </p> <p>Reviewers / Inspectors:</p> <ul style="list-style-type: none"> ■ Review the product and communicate the comments to the review leader in the review meeting. This involves: <ul style="list-style-type: none"> ○ Preparing for the inspection meeting ○ Understanding the product ○ Doing the inspection 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ■ Understand how facilitation review is conducted. 	

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> ○ Focusing on product and NOT the producer ■ In the absence of the recorder, the review leader is responsible for identifying one of the reviewers to consolidate the comments. ■ Everybody involved in the facilitation review (leader, reader, recorded, and author) is an inspector, but it is important that at least one inspector (apart from the author) should be an expert on the product being reviewed. <p>Reader:</p> <ul style="list-style-type: none"> ■ Understands the material being reviewed ■ Paraphrases while reading ■ Sets the pace of inspection ■ Participates as an inspector <p>Recorder:</p> <ul style="list-style-type: none"> ■ Records all review comments made at the meeting (as indicated by leader) ■ Classifies errors 		

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ Takes confirmation on each recorded error▪ Participates as an inspector		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 137</p>  <ul style="list-style-type: none"> ▪ Planning: Choose team, materials, and dates ▪ Orientation: Present product, process and goals (Kick-off) ▪ Preparation: Check product, and note issues ▪ Review Meeting: Consolidate issues ▪ Rework: Correct defects ▪ Verify: Verify product / process quality (Follow-up) 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 138</p>  <p>The clients have just specified their requirement to the onsite coordinator, Jason. After which, he went to the site to meet up with the team to discuss it, to ensure that everything as expected is covered and nothing gets missed out.</p>	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

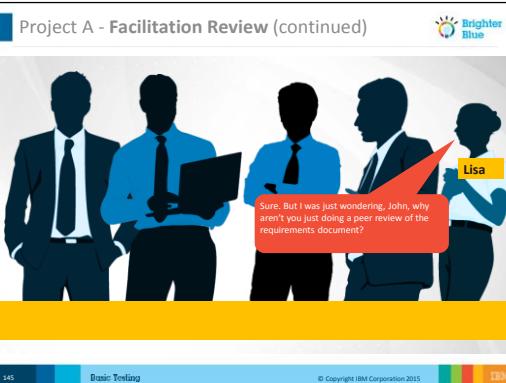
Slide Content	Instructor Guide	Use this space for your notes
Slide 139 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

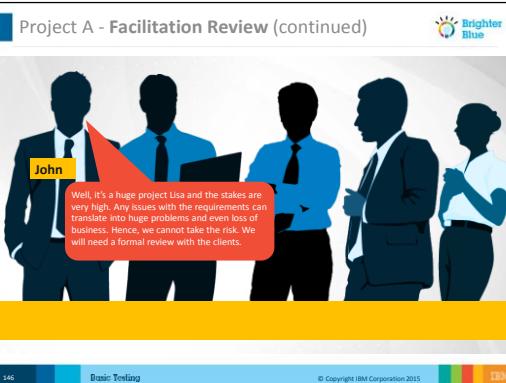
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 140</p> 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

Slide Content	Instructor Guide	Use this space for your notes
Slide 141 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

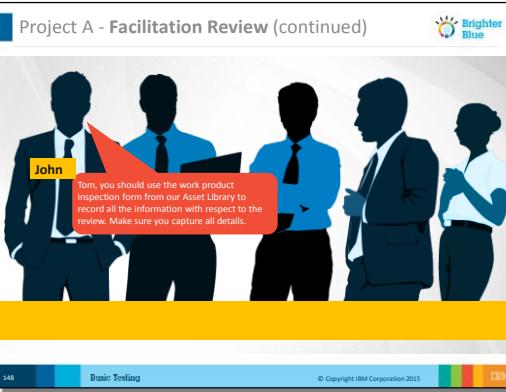
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 142</p> 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

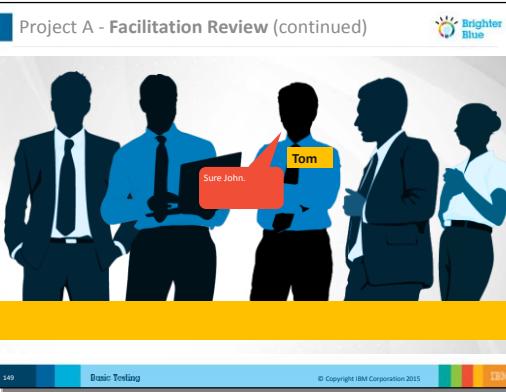
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 143</p> 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

Slide Content	Instructor Guide	Use this space for your notes
Slide 144 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

Slide Content	Instructor Guide	Use this space for your notes
Slide 145 	<p>Purpose: Use one Facilitation Review scenario to understand how facilitation review is conducted.</p> <p>Approximate Duration: 1 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Understand how facilitation review is conducted. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 146</p> 	<p>Purpose: To compare between facilitation review and peer review</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Compare between facilitation review and peer review based on the review characteristics such as: <ul style="list-style-type: none"> ○ Role of review leader ○ Role of recorder ○ Number of reviewers ○ Advance distribution of review material ○ Formal review meeting ○ Review moderation ○ Consolidation of review comments 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 147</p> 	<p>Purpose: To compare between facilitation review and peer review</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Compare between facilitation review and peer review based on the review characteristics such as: <ul style="list-style-type: none"> ○ Recording of review comments ○ Review summary report ○ Evidence of closure of review comments ○ Capturing review preparation time on review summary report ○ Capturing review time on required review summary report 	

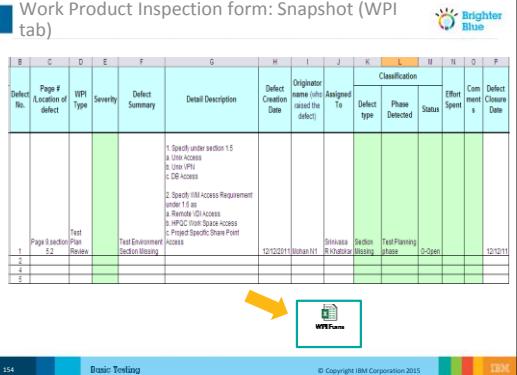
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 148</p> 	<p>Purpose: To give examples of deciding type of review for different cases</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Show the screen capture ▪ Double click on the embedded file icon to open it. ▪ Display it to the participants. ▪ Give examples of deciding type of review for different cases as in the embedded file. 	

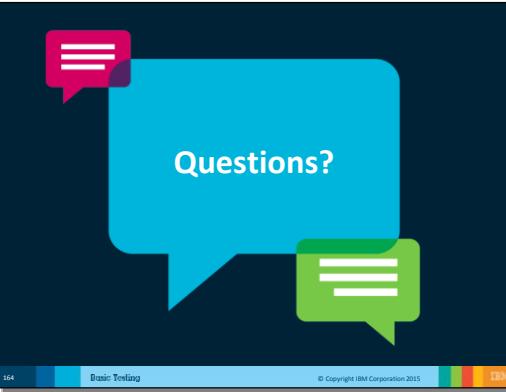
Slide Content	Instructor Guide	Use this space for your notes
Slide 149 	<p>Purpose: To give an example of work product inspection form</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Show the screen capture ▪ Double click on the embedded file icon to open it. ▪ Display it to the participants. ▪ Give an example of work product inspection form as in the embedded file. 	

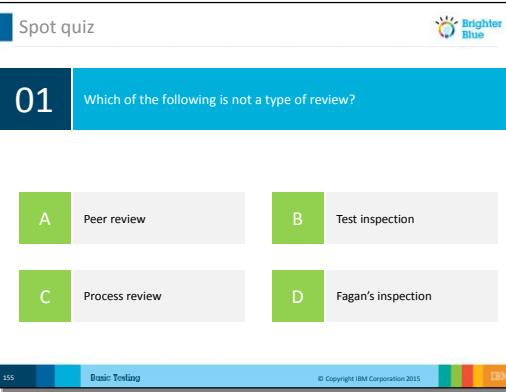
Slide Content	Instructor Guide	Use this space for your notes																											
<p>Slide 150</p> <table border="1" data-bbox="255 425 777 812"> <thead> <tr> <th colspan="3">Facilitation Review and Peer Review: Comparison</th> </tr> <tr> <th>Review Characteristics</th> <th>Fagan's Review / Inspection</th> <th>Peer review</th> </tr> </thead> <tbody> <tr> <td>Role of review leader</td> <td>Required</td> <td>Not required</td> </tr> <tr> <td>Role of recorder</td> <td>Required</td> <td>Not required</td> </tr> <tr> <td>Number of reviewers</td> <td>>= 5 and <=10 (including the review leader)</td> <td>>= 1</td> </tr> <tr> <td>Advance distribution of review material (product to be reviewed and related documentation)</td> <td>Required (at least 2 days in advance of review meeting)</td> <td>Required (at least 2 days in advance of when the comments are due)</td> </tr> <tr> <td>Formal review meeting</td> <td>Required</td> <td>Not required</td> </tr> <tr> <td>Review moderation</td> <td>Done by review leader</td> <td>Done by product owner (in case multiple reviewers are used and a meeting is held)</td> </tr> <tr> <td>Consolidation of review comments</td> <td>Done by recorder</td> <td>Done by product owner</td> </tr> </tbody> </table>	Facilitation Review and Peer Review: Comparison			Review Characteristics	Fagan's Review / Inspection	Peer review	Role of review leader	Required	Not required	Role of recorder	Required	Not required	Number of reviewers	>= 5 and <=10 (including the review leader)	>= 1	Advance distribution of review material (product to be reviewed and related documentation)	Required (at least 2 days in advance of review meeting)	Required (at least 2 days in advance of when the comments are due)	Formal review meeting	Required	Not required	Review moderation	Done by review leader	Done by product owner (in case multiple reviewers are used and a meeting is held)	Consolidation of review comments	Done by recorder	Done by product owner	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants if they have any questions. ▪ Include any questions that will be addressed later in the course as parking lot items. ▪ Use this activity to recap the key takeaways from this module. 	
Facilitation Review and Peer Review: Comparison																													
Review Characteristics	Fagan's Review / Inspection	Peer review																											
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Review moderation	Done by review leader	Done by product owner (in case multiple reviewers are used and a meeting is held)																											
Consolidation of review comments	Done by recorder	Done by product owner																											

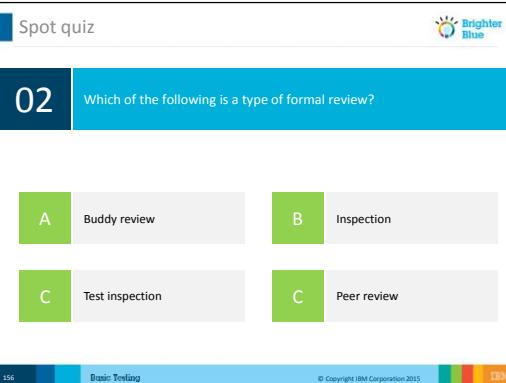
Slide Content	Instructor Guide	Use this space for your notes																					
<p>Slide 151</p> <table border="1" data-bbox="255 421 777 812"> <thead> <tr> <th colspan="3">Facilitation Review and Peer Review: Comparison (continued)</th> </tr> <tr> <th>Review Characteristics</th> <th>Fagan's Review / Inspection</th> <th>Peer review</th> </tr> </thead> <tbody> <tr> <td>Recording of review comments</td> <td>Review defects / Resolution list must be used. (WPI Form)</td> <td>Not required. (Number of reviews, review effort, and number of process improvements identified are recorded.)</td> </tr> <tr> <td>Review summary report</td> <td>Required, prepared by review leader</td> <td>Required, prepared by product owner</td> </tr> <tr> <td>Evidence of closure of review comments</td> <td>Review leader verifies closure and signs on the review summary report.</td> <td>Product owner completes the review summary report with all details after review closure.</td> </tr> <tr> <td>Capturing review preparation time on review summary report</td> <td>Required</td> <td>Not required</td> </tr> <tr> <td>Capturing review time on review summary report</td> <td>Required</td> <td>Required</td> </tr> </tbody> </table> <p>152 Basic Testing © Copyright IBM Corporation 2015</p>	Facilitation Review and Peer Review: Comparison (continued)			Review Characteristics	Fagan's Review / Inspection	Peer review	Recording of review comments	Review defects / Resolution list must be used. (WPI Form)	Not required. (Number of reviews, review effort, and number of process improvements identified are recorded.)	Review summary report	Required, prepared by review leader	Required, prepared by product owner	Evidence of closure of review comments	Review leader verifies closure and signs on the review summary report.	Product owner completes the review summary report with all details after review closure.	Capturing review preparation time on review summary report	Required	Not required	Capturing review time on review summary report	Required	Required	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is B. Test inspection 	
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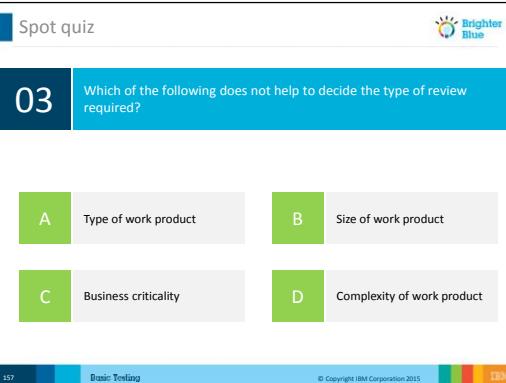
Slide Content	Instructor Guide	Use this space for your notes																																				
<p>Slide 152</p> <div style="border: 1px solid black; padding: 10px;"> <p>Deciding type of review</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Product</th> <th style="text-align: left;">Review Type</th> </tr> </thead> <tbody> <tr> <td>Organization Level Plans</td> <td></td> </tr> <tr> <td>1. First version of all plans (i.e. Process Improvement Plan, Quality Plan, Project Plan, Configuration Change Management Plan etc.)</td> <td>Fagan's Review</td> </tr> <tr> <td>2. New Processes (i.e. First version of processes)</td> <td>Fagan's Review</td> </tr> <tr> <td>3. Revisions to existing Plans</td> <td>Peer Review</td> </tr> <tr> <td>4. Revisions to existing Processes</td> <td>Peer Review</td> </tr> <tr> <td>Project Level Plans, Documents, Code etc</td> <td></td> </tr> <tr> <td>1. Project Plans of Complex projects</td> <td>Fagan's Review</td> </tr> <tr> <td>2. Software Requirements Specification (which require more than 20 person months of effort)</td> <td>Fagan's Review</td> </tr> <tr> <td>3. All other documents/Code of Complex & Mega projects</td> <td>Fagan's or Peer Review</td> </tr> <tr> <td>4. Project Plan documents and code of short term/Organic standard projects</td> <td>Peer Review</td> </tr> <tr> <td>5. Revised Plan of all projects</td> <td>Peer Review</td> </tr> <tr> <td>6. Revised documents and code of all projects</td> <td>Peer Review</td> </tr> <tr> <td>Testing Specific documents/deliverables</td> <td></td> </tr> <tr> <td>1. Test Strategy /Master Test Plan</td> <td>Fagan's Review</td> </tr> <tr> <td>2. Test Plans</td> <td>Fagan's or Peer Review</td> </tr> <tr> <td>3. Test Specifications /Test Scenarios</td> <td>Fagan's or Peer Review</td> </tr> <tr> <td>4. Test cases/scripts</td> <td>Fagan's or Peer Review</td> </tr> </tbody> </table> <p style="text-align: center;"> Type of review</p> </div>	Product	Review Type	Organization Level Plans		1. First version of all plans (i.e. Process Improvement Plan, Quality Plan, Project Plan, Configuration Change Management Plan etc.)	Fagan's Review	2. New Processes (i.e. First version of processes)	Fagan's Review	3. Revisions to existing Plans	Peer Review	4. Revisions to existing Processes	Peer Review	Project Level Plans, Documents, Code etc		1. Project Plans of Complex projects	Fagan's Review	2. Software Requirements Specification (which require more than 20 person months of effort)	Fagan's Review	3. All other documents/Code of Complex & Mega projects	Fagan's or Peer Review	4. Project Plan documents and code of short term/Organic standard projects	Peer Review	5. Revised Plan of all projects	Peer Review	6. Revised documents and code of all projects	Peer Review	Testing Specific documents/deliverables		1. Test Strategy /Master Test Plan	Fagan's Review	2. Test Plans	Fagan's or Peer Review	3. Test Specifications /Test Scenarios	Fagan's or Peer Review	4. Test cases/scripts	Fagan's or Peer Review	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants to refer to the Supporting Documents_Day 1 folder for the embedded files. ▪ Ask them the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is B. Inspection 	
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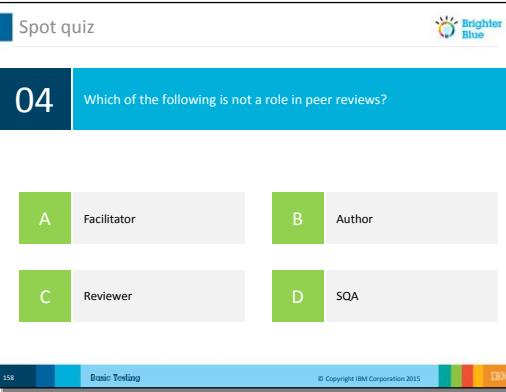
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 153</p> <p>Work Product Inspection form: Snapshot (WPI) tab</p>  <p>The screenshot shows a table with columns for Defect No., Page # (Location of defect), WPI type, Severity, Defect Summary, Detail Description, Defect Creation Date, Originator name (who raised the defect), Assigned To, Defect type, Phase, Status, Effort Spent, Comment s, and Defect Closure Date. A yellow arrow points from the text "WPI Form" to a small icon of a document labeled "WPI Form".</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants to refer to the Supporting Documents_Day 1 folder for the embedded files. ▪ Ask them the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is B. Size of work product 	

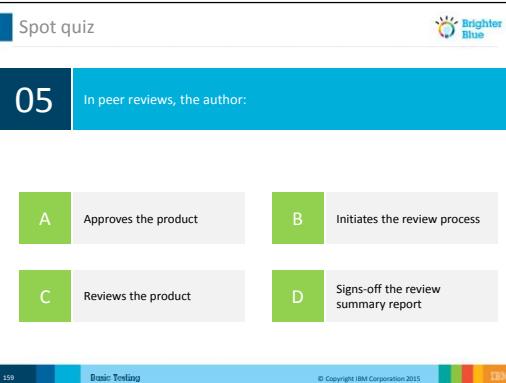
Slide Content	Instructor Guide	Use this space for your notes
Slide 154 	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants if they have any questions. ▪ Include any questions that will be addressed later in the course as parking lot items. ▪ Use this activity to recap the key takeaways from this module. 	

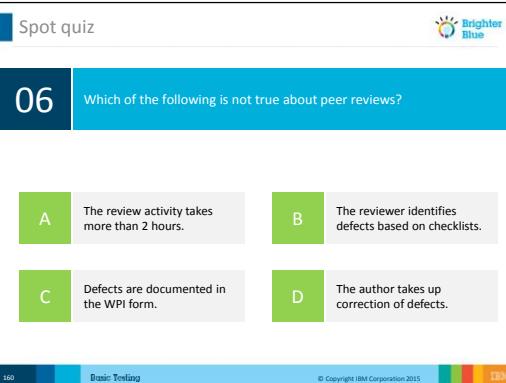
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 155</p>  <p>01 Which of the following is not a type of review?</p> <p>A Peer review B Test inspection</p> <p>C Process review D Fagan's inspection</p> <p>155 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is A. Facilitator 	

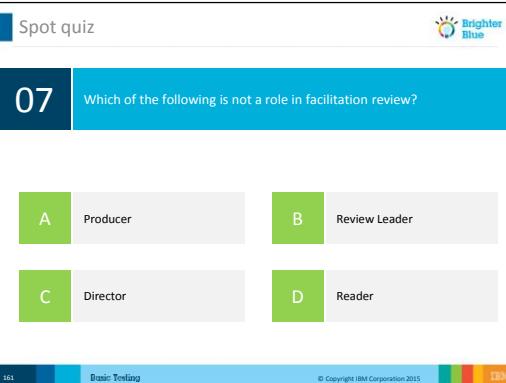
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 156</p>  <p>02 Which of the following is a type of formal review?</p> <p>A Buddy review B Inspection</p> <p>C Test inspection C Peer review</p> <p>156 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is B. Initiates review process 	

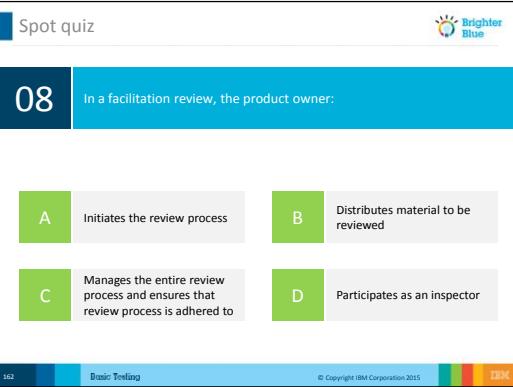
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 157</p>  <p>03 Which of the following does not help to decide the type of review required?</p> <p>A Type of work product B Size of work product</p> <p>C Business criticality D Complexity of work product</p> <p>157 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is A. The review activity takes more than 2 hours. 	

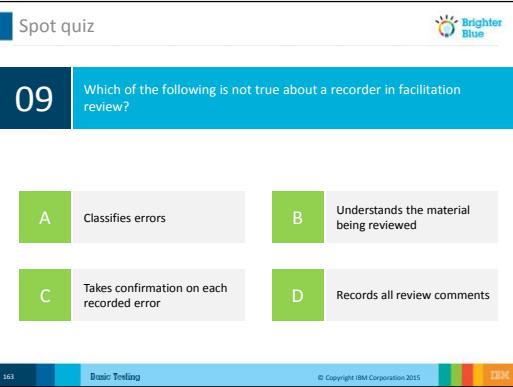
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 158</p>  <p>04 Which of the following is not a role in peer reviews?</p> <p>A Facilitator B Author</p> <p>C Reviewer D SQA</p> <p>IBB Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is C. Director 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 159</p>  <p>The slide shows a 'Spot quiz' titled '05 In peer reviews, the author:'. It lists four options: A) Approves the product, B) Initiates the review process, C) Reviews the product, and D) Signs-off the review summary report. The correct answer is B.</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ■ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ■ The correct answer is A. Initiates the review process 	

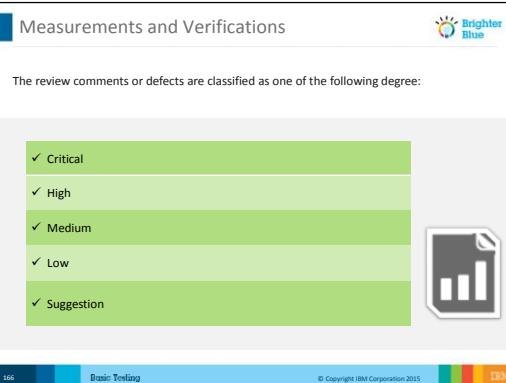
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 160</p>  <p>06 Which of the following is not true about peer reviews?</p> <p>A The review activity takes more than 2 hours. B The reviewer identifies defects based on checklists. C Defects are documented in the WPI form. D The author takes up correction of defects.</p> <p>160 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is B. Understands the material being reviewed 	

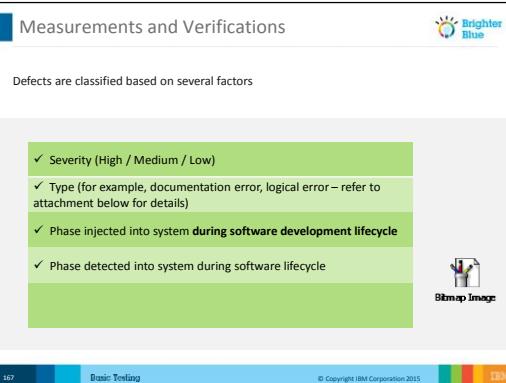
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 161</p>  <p>07 Which of the following is not a role in facilitation review?</p> <p>A Producer B Review Leader</p> <p>C Director D Reader</p> <p>161 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To explain defect classification</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the measurements which are collected from a process. ▪ Explain the classification of defects. ▪ Explain the factors based on which defects are classified. ▪ Double click on the embedded file icon to open it. ▪ Display it to the participants. ▪ Give examples of the types of defects as in the embedded file. 	

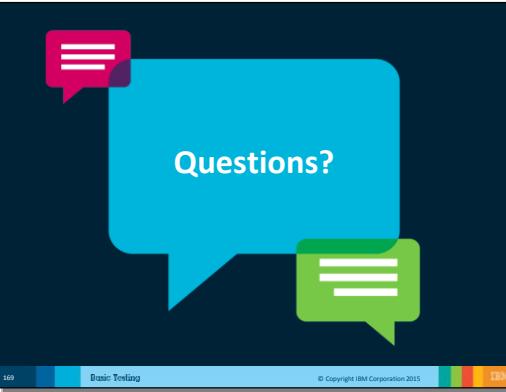
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 162</p>  <p>08 In a facilitation review, the product owner:</p> <ul style="list-style-type: none"> A Initiates the review process B Distributes material to be reviewed C Manages the entire review process and ensures that review process is adhered to D Participates as an inspector <p>162 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To explain defect classification</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the measurements which are collected from a process. ▪ Explain the classification of defects. ▪ Explain the factors based on which defects are classified. ▪ Double click on the embedded file icon to open it. ▪ Display it to the participants. ▪ Give examples of the types of defects as in the embedded file. 	

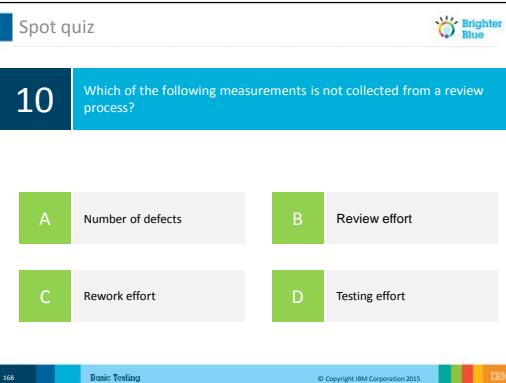
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 163</p>  <p>09 Which of the following is not true about a recorder in facilitation review?</p> <p>A Classifies errors B Understands the material being reviewed</p> <p>C Takes confirmation on each recorded error D Records all review comments</p>	<p>Purpose: To explain defect classification</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the measurements which are collected from a process. ▪ Explain the classification of defects. ▪ Explain the factors based on which defects are classified. ▪ Double click on the embedded file icon to open it. ▪ Display it to the participants. ▪ Give examples of the types of defects as in the embedded file. 	

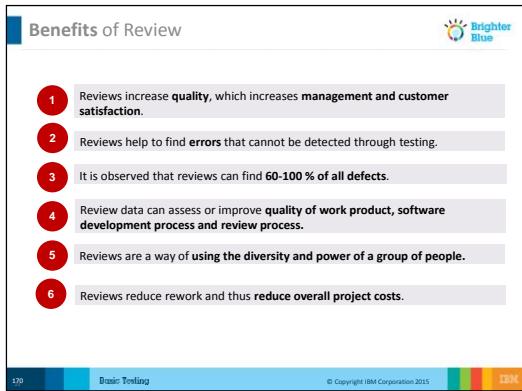
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 164</p> <div data-bbox="255 421 777 812"> <p>Measurements and Verifications</p> <p>Defect classification is essential for analyzing defects and understanding their trend in order to prevent their occurrence in the future. Following measurements are collected from the process.</p> <ul style="list-style-type: none"> ✓ Number of defects ✓ Effort experience on reviews ✓ Size of work product ✓ Rework effort ✓ Defect escapes (in form of Defect Origin)  <p>165 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is D. Testing effort 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 165</p>  <p>The review comments or defects are classified as one of the following degree:</p> <ul style="list-style-type: none"> ✓ Critical ✓ High ✓ Medium ✓ Low ✓ Suggestion <p>165 Basic Testing © Copyright IBM Corporation 2015</p>	<p>Purpose: To explain the benefits of reviews</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the benefits of reviews: <ul style="list-style-type: none"> ○ Increased quality and management and customer satisfaction ○ Errors undetected through testing can be found through reviews ○ 60-100% of defects detected ○ Improved quality of work product, software development process and review process ○ Use of diversity and power of a group of people ○ Reduced rework and overall project costs 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 166</p>  <p>The slide content includes:</p> <ul style="list-style-type: none"> Measurements and Verifications Defects are classified based on several factors ✓ Severity (High / Medium / Low) ✓ Type (for example, documentation error, logical error – refer to attachment below for details) ✓ Phase injected into system during software development lifecycle ✓ Phase detected into system during software lifecycle <p>Bitmap Image</p> <p>167 Basic Testing © Copyright IBM Corporation 2015</p>	<p>Purpose: Describe benefit of review</p> <p>Approximate Duration: 2 min</p> <p>What to cover:</p> <ul style="list-style-type: none"> Describe benefit of review. Explain how timely reviews help in keeping project cost under control with the help of the graph. For the bitmap image, ask the participants to refer to Supporting Documents_Day 1 folder. 	

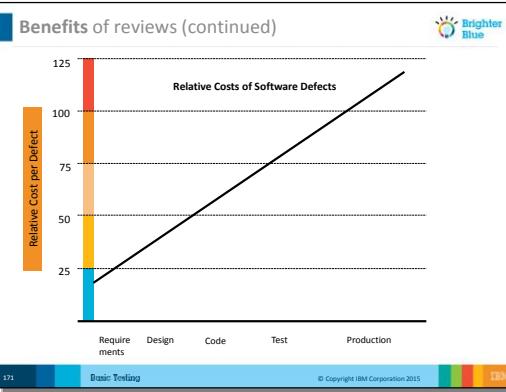
Slide Content	Instructor Guide	Use this space for your notes
Slide 167 	<p>Purpose: To discuss the important aspects of Return on Investment</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Discuss the important aspects of Return on Investment. ▪ Explain how Return on Investment is calculated by using the whiteboard 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 168</p>  <p>10 Which of the following measurements is not collected from a review process?</p> <p>A Number of defects B Review effort</p> <p>C Rework effort D Testing effort</p> <p>168 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To describe review checklist</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Show the screen capture ▪ Double click on the embedded file icon to open it. ▪ Display it to the participants. ▪ Describe review checklist as in the embedded file. 	

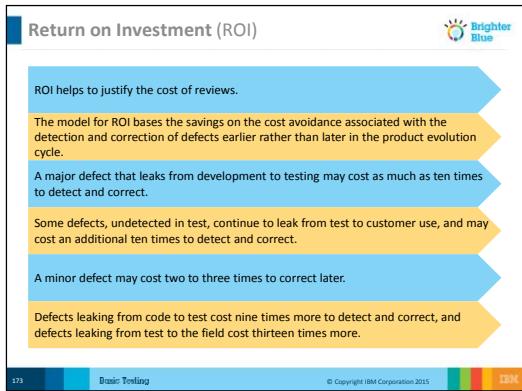
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 169</p> <div data-bbox="255 421 777 812"> <p>Benefits of Review</p>  <p>1. Reviews increase quality, which increases management and customer satisfaction. 2. Reviews help to find errors that cannot be detected through testing. 3. It is observed that reviews can find 60-100 % of all defects. 4. Review data can assess or improve quality of work product, software development process and review process. 5. Reviews are a way of using the diversity and power of a group of people. 6. Reviews reduce rework and thus reduce overall project costs.</p> </div> <ul style="list-style-type: none"> ▪ Reviews increase quality—which increases management and customer satisfaction. ▪ Reviews help to find errors that cannot be detected through testing. ▪ It is observed that reviews can find 60-100% of all defects. ▪ Review data can assess or improve quality of: <ul style="list-style-type: none"> ○ Work product 	<p>Approximate Duration: 20 mins</p> <p>Additional Materials or Pre-session prep tasks:</p> <ul style="list-style-type: none"> ▪ Embedded MS Word file <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the scenario. ▪ Tell the participants what they need to do. ▪ Ensure they have the Word file ▪ Review the outcome of the exercise. <p>Purpose: To see if the participants are able to carry out a review, and incorporate valid suggestions made in the review</p> <p>Instructions for the participants:</p> <ul style="list-style-type: none"> ▪ Ask participants to form groups of three. ▪ Assign roles to the participants. 	

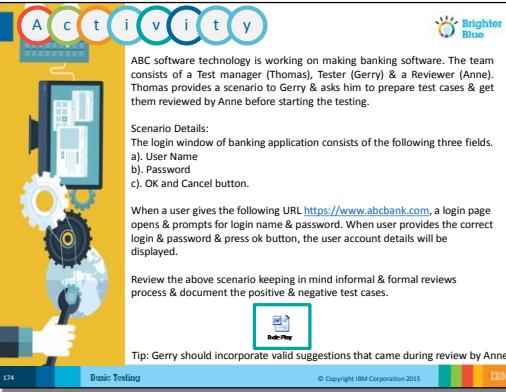
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> ○ Software development process ○ Review process ▪ Reviews are a way of using the diversity and power of a group of people to: <ul style="list-style-type: none"> ○ Detect defects (errors) ○ Remove defects as close to the point of insertion as possible ○ Determine product progress or status ○ Identify potential improvements ○ Produce technical work of a more uniform and predictable quality ○ Gain ownership by the project team ○ Establish an audit trail from systems requirements allocated to software through the successive phases of development (traceability) ▪ Reviews reduce rework and thus reduce overall project cost. 	<ul style="list-style-type: none"> ▪ Tell participants what the desired outcome of the exercise is. <p>Debrief:</p> <ul style="list-style-type: none"> ▪ Ask the participants about their experience of this role play activity. ▪ Ask the participants how much this activity will help them in applying the learned concepts in real life scenario. <p>Note to SME: Please validate above instruction.</p>	

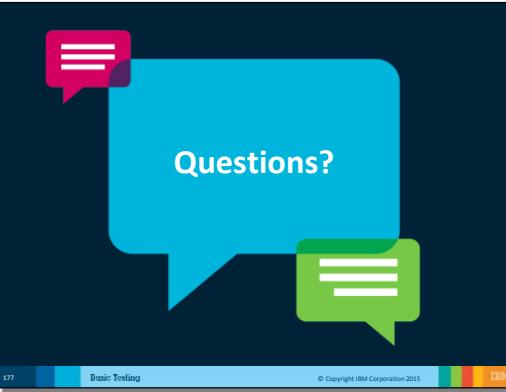
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">○ Rework accounts for 44% of development cost while review accounts for only 15%.○ The 44% is split as: Requirement (1%), Design (12%), Coding (12%), and Testing (19%).		

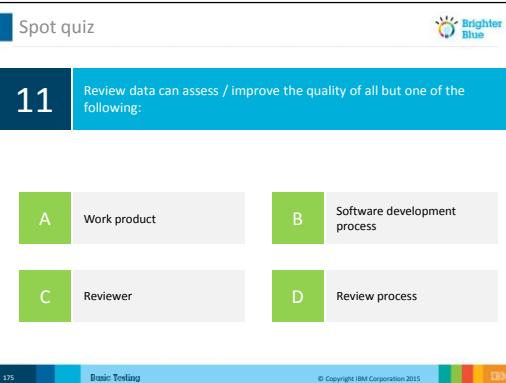
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 170</p>  <p>It is observed that the maximum number of defects are injected during requirements phase itself (Requirements – 56%, Design – 27%, Code – 7%, Other – 10%). Upstream defect removal is 10 to 100 times cheaper. Hence, timely reviews help in keeping project cost under control.</p>	<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is C. Reviewer 	

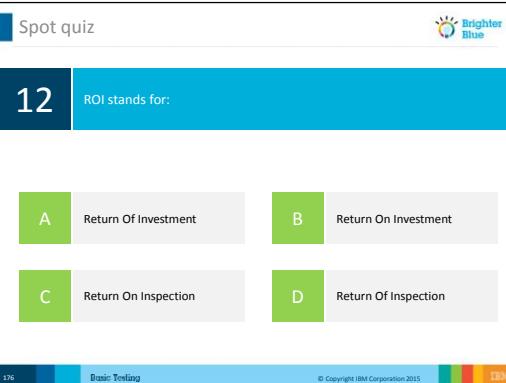
Slide Content	Instructor Guide	Use this space for your notes																																																																																												
<p>Slide 171</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Review checklist</p> <p>Test Case Review Checklist</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> <th>N/A</th> </tr> </thead> <tbody> <tr> <td>Test Overview</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1. Is the objective of this testing activity clearly identified?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Are all prerequisites and other related documents identified?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. Does the document describe the type(s) of tests to be addressed?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4. Does the document describe the scope of what will be tested?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. For the test type, does the document list all relevant tests necessary to be performed?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6. Are the validation tests clearly identified?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>7. Are the regression tests clearly identified?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>8. Are integration tests, including COVET components included?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>9. Is the test plan under version control?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Approach</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1. Does the document describe the tactics to be used for the testing activities?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Are the test sequences and dependencies defined?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. Are the tactics and test types aligned with the Master Test Plan?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>General</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1. Are the test instructions clear and easy to follow?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Is the test well designed to test the relevant areas of the system?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. Do the test results include reference to the location of the test result?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4. Does every test case include a description of the expected output or desired outcome?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. Are the test cases sufficiently documented so as to be 100% repeatable?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6. Do test cases include verification of proper return codes?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>7. Are the Test Cases under version control?</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>171 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>		Yes	No	N/A	Test Overview				1. Is the objective of this testing activity clearly identified?				2. Are all prerequisites and other related documents identified?				3. Does the document describe the type(s) of tests to be addressed?				4. Does the document describe the scope of what will be tested?				5. For the test type, does the document list all relevant tests necessary to be performed?				6. Are the validation tests clearly identified?				7. Are the regression tests clearly identified?				8. Are integration tests, including COVET components included?				9. Is the test plan under version control?				Approach				1. Does the document describe the tactics to be used for the testing activities?				2. Are the test sequences and dependencies defined?				3. Are the tactics and test types aligned with the Master Test Plan?				General				1. Are the test instructions clear and easy to follow?				2. Is the test well designed to test the relevant areas of the system?				3. Do the test results include reference to the location of the test result?				4. Does every test case include a description of the expected output or desired outcome?				5. Are the test cases sufficiently documented so as to be 100% repeatable?				6. Do test cases include verification of proper return codes?				7. Are the Test Cases under version control?				<p>Purpose: To check the knowledge of participants and break the monotony</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants to refer to the Supporting Documents_Day 1 folder for the embedded files. ▪ Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is B. Return On Investment 	
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Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 172</p> <div data-bbox="255 421 777 812" style="border: 1px solid black; padding: 10px;"> <p>Return on Investment (ROI)</p>  </div> <p>Note:</p> <p>ROI helps to justify the cost of reviews. It is calculated as follows:</p> <p>ROI = Net Savings / Detection Cost Where, Net Savings = Cost to Repair – Cost Avoidance Detection Cost = Cost of Preparation Effort + Cost of Effort to Conduct Review</p>	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants if they have any questions. ▪ Include any questions that will be addressed later in the course as parking lot items. ▪ Use this activity to recap the key takeaways from this module. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 173</p>  <p>Scenario Details: The login window of banking application consists of the following three fields. a). User Name b). Password c). OK and Cancel button.</p> <p>When a user gives the following URL https://www.abcbank.com, a login page opens & prompts for login name & password. When user provides the correct login & password & press ok button, the user account details will be displayed.</p> <p>Review the above scenario keeping in mind informal & formal reviews process & document the positive & negative test cases.</p> <p>Tip: Gerry should incorporate valid suggestions that came during review by Anne.</p>	<p>Purpose: To go over the objectives of this module.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants to refer to the Supporting Documents_Day 1 folder for the embedded files. ▪ Define a test and a test technique. ▪ Describe in details the testing design techniques. ▪ Recognize the test conditions and designing test cases. ▪ List the categories of test design techniques. ▪ Identify the objectives of a good test case. ▪ Recall how to document and design test cases. 	

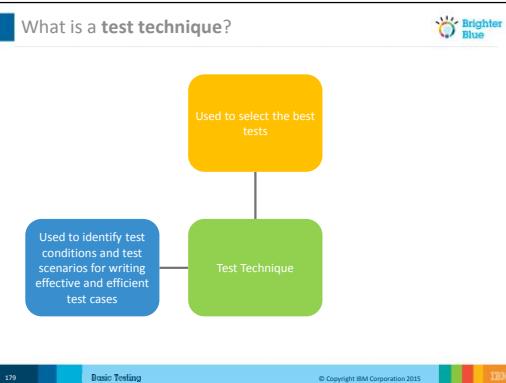
Slide Content	Instructor Guide	Use this space for your notes
Slide 174  <p>The slide features a dark blue background with a large light blue speech bubble in the center containing the text "Questions?". There are two smaller speech bubbles, one pink and one green, positioned above and below the central bubble. At the bottom of the slide, there is a navigation bar with icons for back, forward, and search, along with the text "174 Basic Testing © Copyright IBM Corporation 2015 IBM".</p>	<p>Purpose: To discuss the important aspects of Return on Investment</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Discuss the important aspects of Return on Investment. ▪ Explain how Return on Investment is calculated by using the whiteboard 	

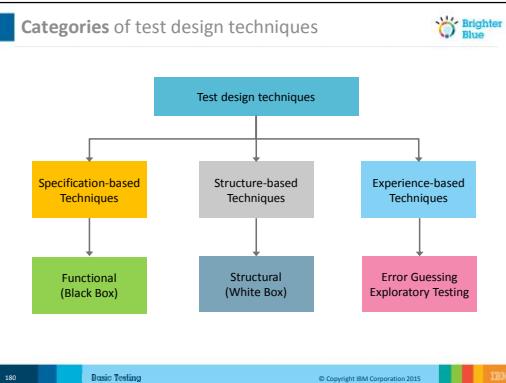
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 175</p>  <p>Spot quiz</p> <p>11 Review data can assess / improve the quality of all but one of the following:</p> <p>A Work product B Software development process</p> <p>C Reviewer D Review process</p> <p>175 Basic Testing © Copyright IBM Corporation 2015 IBM</p>		

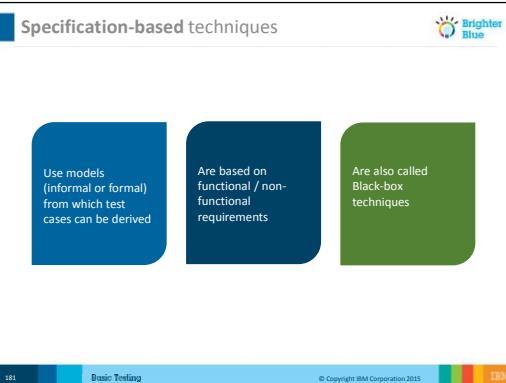
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 176</p>  <p>The slide displays a spot quiz question. The question is: "12 ROI stands for: A Return Of Investment B Return On Investment C Return On Inspection D Return Of Inspection". The correct answer is B.</p>		

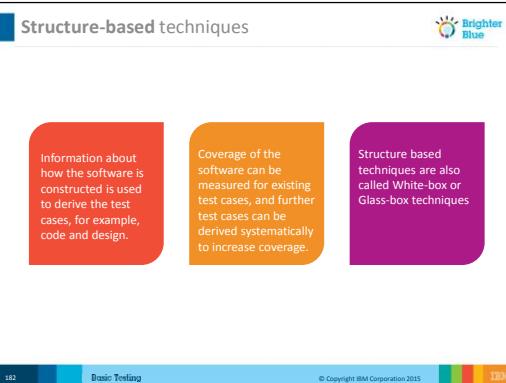
Module 4: Testing Design Techniques and Approach

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 177</p>  <p>At the end of this module, you should be able to:</p> <ul style="list-style-type: none"> ▪ Identify test conditions for designing test cases ▪ Describe categories and types of test design techniques ▪ List the components of a test case template 	<p>Purpose: To go over the objectives of this module.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Define a test and a test technique. ▪ Describe in details the testing design techniques. ▪ Recognize the test conditions and designing test cases. ▪ List the categories of test design techniques. ▪ Identify the objectives of a good test case. ▪ Recall how to document and design test cases. techniques 	

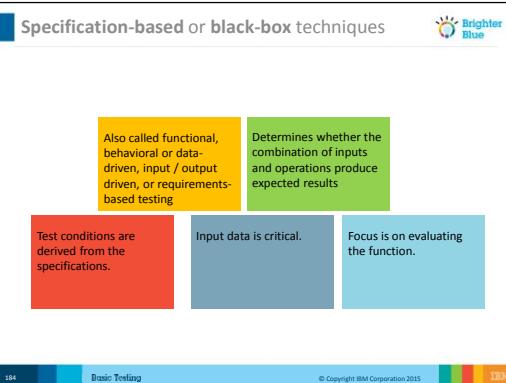
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 178</p>  <pre> graph TD A[Used to identify test conditions and test scenarios for writing effective and efficient test cases] --> B[Test Technique] B --> C[Used to select the best tests] </pre> <p>The diagram illustrates the purpose of a Test Technique. It shows a flow from identifying test conditions and scenarios to the Test Technique itself, which then leads to selecting the best tests.</p> <ul style="list-style-type: none"> ▪ Test techniques are used to select the best tests from the infinite number of all possible tests for a given system. ▪ Test techniques are used to identify test conditions and test scenarios through which effective and efficient test cases can be written. ▪ Test techniques help to achieve high test coverage and define tests that will provide insight into the quality of the test object. 	<p>Purpose: To explain what is a test technique.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Define what a test technique is. ▪ Describe its characteristics. ▪ To explain the test techniques better refer to the notes section of the slide (also in the Slide Content Column of this document). 	

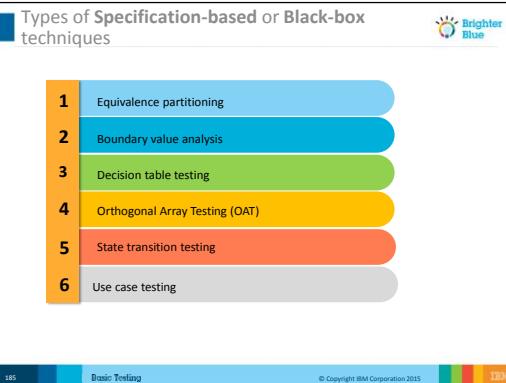
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 179</p>  <pre> graph TD A[Test design techniques] --> B[Specification-based Techniques] A --> C[Structure-based Techniques] A --> D[Experience-based Techniques] B --> E[Functional Black Box] B --> F[Structural White Box] D --> G[Error Guessing Exploratory Testing] </pre>	<p>Purpose: To point out the categories of test design techniques.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ List the categories of test design techniques for the participants. ▪ Mention to the participants that each of the categories will be explained in details in the following slides. ▪ Tell the participants that we will begin with the Specification-based technique. 	

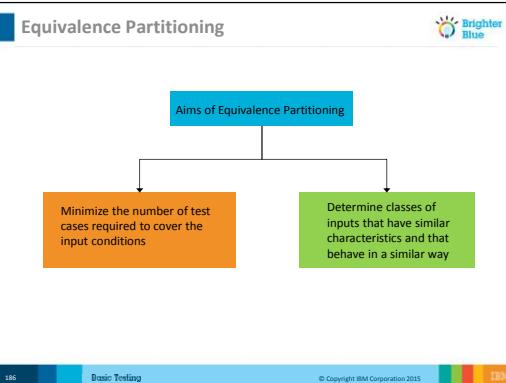
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 180</p>  <p>The slide content includes a title 'Specification-based techniques' and three bullet points: 'Use models (informal or formal) from which test cases can be derived', 'Are based on functional / non-functional requirements', and 'Are also called Black-box techniques'. The slide footer contains the number '180', the title 'Basic Testing', the copyright notice '© Copyright IBM Corporation 2015', and the IBM logo.</p>	<p>Purpose: To explain Specification-based techniques.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover: Point out the important aspects of the Specification-based techniques.</p>	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 181</p>  <p>The slide content includes:</p> <ul style="list-style-type: none"> Structure-based techniques (Section title) Purpose: To describe Structure-based techniques Approximate Duration: 2 mins What to cover: <ul style="list-style-type: none"> Explain to the participants the key aspects of the Structure-based techniques. 	<p>Purpose: To describe Structure-based techniques</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Explain to the participants the key aspects of the Structure-based techniques. 	

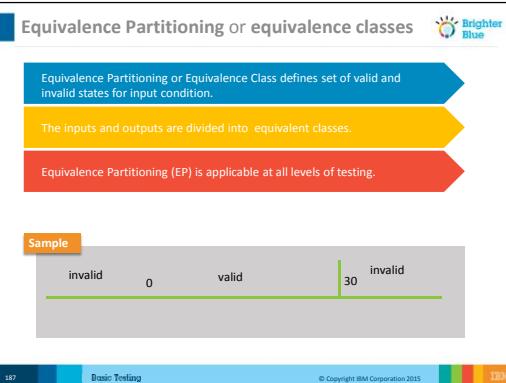
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 182</p>  <p>The slide content includes a title 'Experience-based techniques' and two main points: 'Knowledge and experience of people like testers, developers, users are used to derive the test cases.' and 'Knowledge of software, its usage, its environment, likely defects, and its distribution is required for deriving test cases.' The slide footer shows '182 Basic Testing © Copyright IBM Corporation 2015' and the IBM logo.</p>	<p>Purpose: To define Experience-based techniques</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Tell the participants that Experience-based techniques is the third category. Use the slide to define this type of technique to them. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 183</p>  <p>Specification-based or black-box techniques</p> <ul style="list-style-type: none"> Also called functional, behavioral or data-driven, input / output driven, or requirements-based testing Determines whether the combination of inputs and operations produce expected results Test conditions are derived from the specifications. Input data is critical. Focus is on evaluating the function. <p>IBM Basic Testing © Copyright IBM Corporation 2015</p>	<p>Purpose: To explain Specification-based or Black-box techniques</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Mention it to the participants that Specification-based technique is also known as Black-box technique. ▪ There are five primary points to remember while describing this kind of technique. Point these out to the learners from the slide. ▪ Also tell them that in the next slide we will take up the types of Black-box technique. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 184</p>  <p>Types of Specification-based or Black-box techniques</p> <ol style="list-style-type: none"> 1 Equivalence partitioning 2 Boundary value analysis 3 Decision table testing 4 Orthogonal Array Testing (OAT) 5 State transition testing 6 Use case testing <p>IBS Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Purpose: To identify the types of Specification-based or Black-box techniques.</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ There are five types of Black-box techniques. ▪ Point out the list to the participants. 	

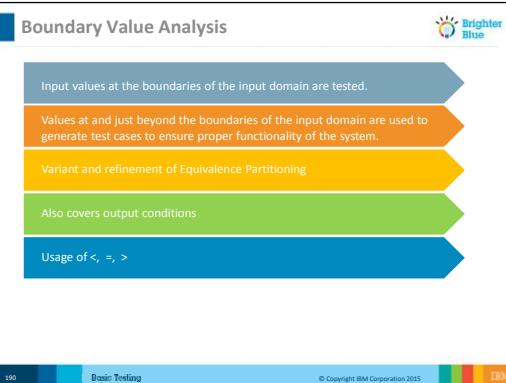
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 185</p>  <pre> graph TD A[Aims of Equivalence Partitioning] --> B[Minimize the number of test cases required to cover the input conditions] A --> C[Determine classes of inputs that have similar characteristics and that behave in a similar way] </pre> <p>Aims:</p> <ul style="list-style-type: none"> ▪ Minimize the number of test cases required to cover the input conditions ▪ Determine classes of inputs that have similar characteristics and that behave in a similar way. Two test cases based on inputs from the same Equivalence Class are likely to reveal same bug. <p>Identifying Equivalence Classes (ECs):</p>	<p>Purpose:</p> <ul style="list-style-type: none"> ▪ To describe Equivalence Partitioning and its aims <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Describe in details what Equivalence Partitioning is. ▪ While describing this refer to the notes section of the slide (also in the Slide Content Column of this document). 	

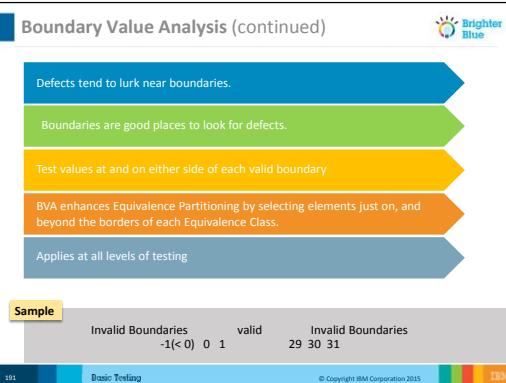
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none"> ▪ If input specifies a RANGE of valid values, define one EC in the range and one outside each end. ▪ If input specifies a NUMBER (N) of valid values, define one valid EC and two invalid ECs (none, and more than N). ▪ If input specifies a SET of valid values, define one valid EC (within) and one invalid EC (not in). ▪ If there is a reason to believe the program handles each valid input differently, each valid input is an EC. ▪ If input specifies Must Be situation, define one valid EC (is) and one invalid EC (is not). ▪ If there is a reason to believe that elements in an EC are not handled in an identical manner, subdivide the EC into smaller ECs. 		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 186</p> 	<p>Purpose: To explain the key aspects of Equivalence Partitioning or Equivalence Classes</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Point out the three aspects highlighted in the slide to explain the key characteristics of Equivalence Partitioning or Equivalence Classes. ▪ There is a sample in the slide which can be used to explain it better. ▪ Also mention to the participants that we will continue with the concept of Equivalence Partitioning in the next slide. 	

Slide Content	Instructor Guide	Use this space for your notes															
<p>Slide 187</p> <div data-bbox="255 421 777 812"> <p>Equivalence Partitioning or equivalence classes (continued)</p> <p>Example:</p> <table border="1" data-bbox="502 474 734 518"> <thead> <tr> <th>Salary range</th> <th>Tax</th> </tr> </thead> <tbody> <tr> <td>1000 to 2500</td> <td>No tax</td> </tr> <tr> <td>2501 to 4000</td> <td>5% of the salary</td> </tr> </tbody> </table> <p>Consider the tax slabs:</p> <table border="1" data-bbox="502 518 734 584"> <thead> <tr> <th>Salary range</th> <th>Tax</th> </tr> </thead> <tbody> <tr> <td>1000 to 2500</td> <td>No tax</td> </tr> <tr> <td>2501 to 4000</td> <td>5% of the salary</td> </tr> </tbody> </table> <p>In Equivalence, we divide the range as the following classes:</p> <table border="1" data-bbox="276 638 756 763"> <tr> <td>C1 – Invalid values: From 0 to 999</td> <td>C2 – No tax: From 1000 to 2500</td> <td>C3 – Tax 5% of the salary: From 2501 to 4000</td> </tr> </table> <p>188 Basic Testing © Copyright IBM Corporation 2015</p> </div> <p>To put this in simpler words, since it is practically infeasible to do exhaustive testing, the next best alternative is to check whether the program extends similar behavior or treatment to a certain group of inputs. If such a group of values can be found in the input domain, treat them together as one equivalent class and test one representative from this class.</p>	Salary range	Tax	1000 to 2500	No tax	2501 to 4000	5% of the salary	Salary range	Tax	1000 to 2500	No tax	2501 to 4000	5% of the salary	C1 – Invalid values: From 0 to 999	C2 – No tax: From 1000 to 2500	C3 – Tax 5% of the salary: From 2501 to 4000	<p>Purpose: To explain how to divide inputs into equivalence classes with an example.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Use another example from the slide to describe this concept. ▪ Refer to the notes section of the slide (also in the Slide Content Column of this document) for more input on the equivalence classes. 	
Salary range	Tax																
1000 to 2500	No tax																
2501 to 4000	5% of the salary																
Salary range	Tax																
1000 to 2500	No tax																
2501 to 4000	5% of the salary																
C1 – Invalid values: From 0 to 999	C2 – No tax: From 1000 to 2500	C3 – Tax 5% of the salary: From 2501 to 4000															

Slide Content	Instructor Guide	Use this space for your notes				
<p>Slide 188</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Equivalence Partitioning: Advantages and disadvantages</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #92d050; color: white;">Advantage</th> <th style="background-color: #92d050; color: white;">Disadvantage</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> ▪ By identifying and testing one input of each partition, we gain a 'good' coverage with 'small' number of test cases. ▪ Testing one input of a partition should be as good as testing any inputs of the partition. </td> <td style="padding: 5px;"> <ul style="list-style-type: none"> ▪ Does not test every input ▪ No guidelines for choosing inputs ▪ Heuristic-based approach ▪ Very limited focus ▪ Not guaranteed that the system under test treats all sets of an equivalence class in the same way </td> </tr> </tbody> </table> <p style="font-size: small; margin-top: 10px;">188 Basic Testing © Copyright IBM Corporation 2015 </p> </div> <td data-bbox="840 355 1431 892"> <p>Purpose: To discuss the advantages and disadvantages of equivalence partitioning</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Point out the list of advantages and disadvantages of equivalence partitioning to the participants. </td> <td data-bbox="1431 355 1951 892"></td>	Advantage	Disadvantage	<ul style="list-style-type: none"> ▪ By identifying and testing one input of each partition, we gain a 'good' coverage with 'small' number of test cases. ▪ Testing one input of a partition should be as good as testing any inputs of the partition. 	<ul style="list-style-type: none"> ▪ Does not test every input ▪ No guidelines for choosing inputs ▪ Heuristic-based approach ▪ Very limited focus ▪ Not guaranteed that the system under test treats all sets of an equivalence class in the same way 	<p>Purpose: To discuss the advantages and disadvantages of equivalence partitioning</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Point out the list of advantages and disadvantages of equivalence partitioning to the participants. 	
Advantage	Disadvantage					
<ul style="list-style-type: none"> ▪ By identifying and testing one input of each partition, we gain a 'good' coverage with 'small' number of test cases. ▪ Testing one input of a partition should be as good as testing any inputs of the partition. 	<ul style="list-style-type: none"> ▪ Does not test every input ▪ No guidelines for choosing inputs ▪ Heuristic-based approach ▪ Very limited focus ▪ Not guaranteed that the system under test treats all sets of an equivalence class in the same way 					

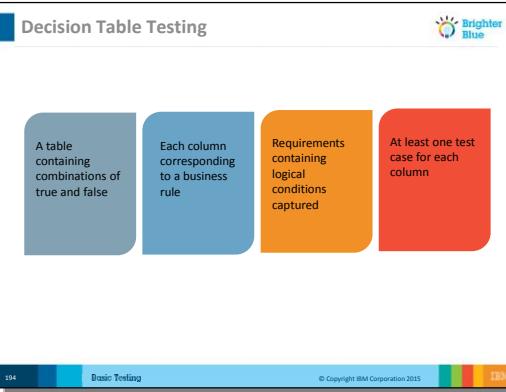
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 189</p> <div data-bbox="264 424 770 807"> <p>Boundary Value Analysis</p>  <ul style="list-style-type: none"> Input values at the boundaries of the input domain are tested. Values at and just beyond the boundaries of the input domain are used to generate test cases to ensure proper functionality of the system. Variant and refinement of Equivalence Partitioning Also covers output conditions Usage of <, =, > <p>189 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	<p>Purpose: To describe the key aspects of Boundary Value Analysis.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that we will browse through the main aspects of Boundary Value Analysis in the next two slides. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 190</p> 	<p>Purpose: To describe the key aspects of Boundary Value Analysis.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ As a continuation, keep pointing out the aspects. ▪ There is a sample of Boundary Value Analysis at the end of the slide. Mention it to the participants as you explain it. 	

Slide Content	Instructor Guide	Use this space for your notes													
<p>Slide 191</p> <div style="border: 1px solid black; padding: 10px;"> <p>Boundary Value Analysis: Example</p> <p>Consider the tax slabs:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #90EE90;">Salary range</th> <th style="background-color: #90EE90;">Tax</th> </tr> </thead> <tbody> <tr> <td>1000 to 2500</td> <td>No tax</td> </tr> <tr> <td>2501 to 4000</td> <td>5% of the salary</td> </tr> </tbody> </table> <p>In Equivalence, we divide the range as the following classes:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #90EE90; padding: 2px;">C1 – Invalid values: From 0 to 999</td> <td style="background-color: #90EE90; padding: 2px;">C2 – Valid values - No tax: From 1000 to 2500</td> <td style="background-color: #FFCCBC; padding: 2px;">C3 – Tax 5% of the salary: From 2501 to 4000</td> </tr> </table> <p>In Boundary Value Analysis, analyze the boundaries with the following values:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #90EE90; padding: 2px;">Lower boundary (1000):</td> <td style="background-color: #FFCCBC; padding: 2px;">→ 1000-1, 1000, 1000+1</td> </tr> <tr> <td style="background-color: #FFCCBC; padding: 2px;">Upper boundary (2500):</td> <td style="background-color: #90EE90; padding: 2px;">→ 2500-1, 2500, 2500+1</td> </tr> </table> <p style="font-size: small; margin-top: 10px;">191 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div> <p>Consider that for salary between 1000-2500---->no tax and from 2501-4000---->tax 5% of their Salary.</p> <p>In EQUIVALENCE : we divide the range as the following classes:</p> <ul style="list-style-type: none"> - from 0 to 999 is put together in one class c1- invalid values - from 1000 to 2500 in class c2 – no tax- Valid values - from 2501 to 4000 in class c3- 5% of their salary 	Salary range	Tax	1000 to 2500	No tax	2501 to 4000	5% of the salary	C1 – Invalid values: From 0 to 999	C2 – Valid values - No tax: From 1000 to 2500	C3 – Tax 5% of the salary: From 2501 to 4000	Lower boundary (1000):	→ 1000-1, 1000, 1000+1	Upper boundary (2500):	→ 2500-1, 2500, 2500+1	<p>Purpose: To describe how to consider test values for Boundary Value Analysis with an example.</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that this time we will take up an example to describe the Boundary Value Analysis. ▪ Refer to the notes section of the slide (also in the Slide Content Column of this document) to describe it in details to the participants. 	
Salary range	Tax														
1000 to 2500	No tax														
2501 to 4000	5% of the salary														
C1 – Invalid values: From 0 to 999	C2 – Valid values - No tax: From 1000 to 2500	C3 – Tax 5% of the salary: From 2501 to 4000													
Lower boundary (1000):	→ 1000-1, 1000, 1000+1														
Upper boundary (2500):	→ 2500-1, 2500, 2500+1														

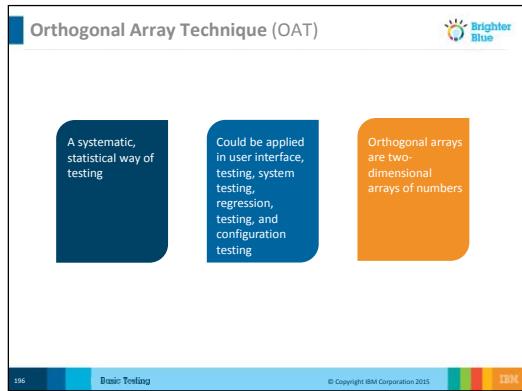
Slide Content	Instructor Guide	Use this space for your notes
<p>Boundary Value: taking the above example We would be analyzing the lower boundary (1000) with values as 1000-1, 1000 and 1000+1</p> <p>Similarly the upper boundary (2500) would be tested with values as 2500-1, 2500 and 2500+1 for the class which is eligible for No Tax.</p> <p>Similarly we can also do the boundary value analysis for the class which is charged with 5% tax.</p>		

Slide Content	Instructor Guide	Use this space for your notes				
<p>Slide 192</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Boundary Value Analysis: Advantages and disadvantages</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #92d050; color: white;">Advantage</th> <th style="background-color: #92d050; color: white;">Disadvantage</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> ▪ Very good at exposing potential user interface / user input problems ▪ Very clear guidelines on determining test cases ▪ Very small set of test cases generated </td> <td style="padding: 5px;"> <ul style="list-style-type: none"> ▪ Does not test all possible inputs ▪ Does not test dependencies between combinations of inputs </td> </tr> </tbody> </table> <p style="font-size: small; margin-top: 10px;"> 192 IBM Basic Testing © Copyright IBM Corporation 2015 IBM </p> </div>	Advantage	Disadvantage	<ul style="list-style-type: none"> ▪ Very good at exposing potential user interface / user input problems ▪ Very clear guidelines on determining test cases ▪ Very small set of test cases generated 	<ul style="list-style-type: none"> ▪ Does not test all possible inputs ▪ Does not test dependencies between combinations of inputs 	<p>Purpose: To discuss the advantages and disadvantages of Boundary Value Analysis</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ There are three advantages and two disadvantages in Boundary Value Analysis. ▪ Point these out to the learners. 	
Advantage	Disadvantage					
<ul style="list-style-type: none"> ▪ Very good at exposing potential user interface / user input problems ▪ Very clear guidelines on determining test cases ▪ Very small set of test cases generated 	<ul style="list-style-type: none"> ▪ Does not test all possible inputs ▪ Does not test dependencies between combinations of inputs 					

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 193</p>  <p>Characteristics of Decision Table Testing:</p> <ul style="list-style-type: none"> ▪ A table contains combinations of true and false for all input conditions and the resulting actions for each. ▪ Each column corresponds to a business rule that defines a unique combination of conditions that result in the execution of the actions associated with that rule. ▪ Requirements that contain logical conditions can be captured. 	<p>Purpose: To describe the characteristics of Decision Table Testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Explain the characteristics of Decision Table Testing to the participants. ▪ Refer to the notes section of the slide (also in the Slide Content Column of this document) to describe Decision Table Testing in details to the participants. 	

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ At least one test case is written per column.		

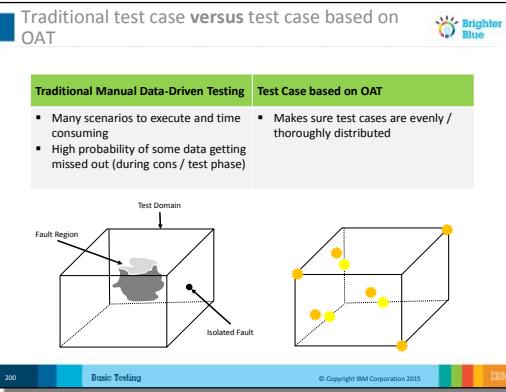
Slide Content	Instructor Guide	Use this space for your notes																																
Slide 194 <div style="border: 1px solid black; padding: 10px;"> <p>Decision table testing</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Marks</th> <th>Rule 1</th> <th>Rule 2</th> <th>Rule 3</th> </tr> </thead> <tbody> <tr> <td>0 - 35</td> <td>Y</td> <td>N</td> <td>N</td> </tr> <tr> <td>36 - 65</td> <td>N</td> <td>Y</td> <td>N</td> </tr> <tr> <td>66 - 74</td> <td>N</td> <td>N</td> <td>Y</td> </tr> <tr> <td>Result</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Fail</td> <td>Y</td> <td>N</td> <td>N</td> </tr> <tr> <td>Pass</td> <td>N</td> <td>Y</td> <td>Y</td> </tr> <tr> <td>First Class</td> <td>N</td> <td>N</td> <td>Y</td> </tr> </tbody> </table> <p>195 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	Marks	Rule 1	Rule 2	Rule 3	0 - 35	Y	N	N	36 - 65	N	Y	N	66 - 74	N	N	Y	Result				Fail	Y	N	N	Pass	N	Y	Y	First Class	N	N	Y	<p>Purpose: To discuss Decision Table with the help of an example</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that here is another example to help you understand the concept better. ▪ Describe the example in the tabular format to them. 	
Marks	Rule 1	Rule 2	Rule 3																															
0 - 35	Y	N	N																															
36 - 65	N	Y	N																															
66 - 74	N	N	Y																															
Result																																		
Fail	Y	N	N																															
Pass	N	Y	Y																															
First Class	N	N	Y																															

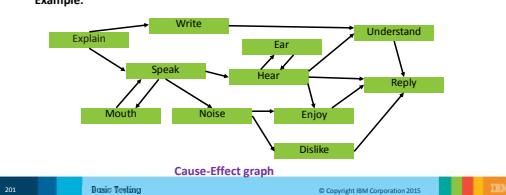
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 195</p> <div data-bbox="255 421 777 812"> <p>Orthogonal Array Technique (OAT)</p>  <p>A systematic, statistical way of testing</p> <p>Could be applied in user interface, system testing, regression, testing, and configuration testing</p> <p>Orthogonal arrays are two-dimensional arrays of numbers</p> <p>195 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div> <p>Characteristics of Orthogonal Array Technique:</p> <ul style="list-style-type: none"> ▪ Orthogonal Array Technique / Testing is a systematic, statistical way of testing. ▪ Orthogonal arrays could be applied in user interface testing, system testing, regression testing, and configuration testing. ▪ Orthogonal arrays are two-dimensional arrays of numbers which possess the interesting quality that by choosing any two columns in the array you receive an even distribution of all the pair-wise combinations of values in the array. 	<p>Purpose: To explain the characteristics of Orthogonal Array Technique</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Describe the characteristics of Orthogonal Array Technique. ▪ Refer to the notes section of the slide (also in the Slide Content Column of this document) to describe Orthogonal Array Technique to the participants. 	

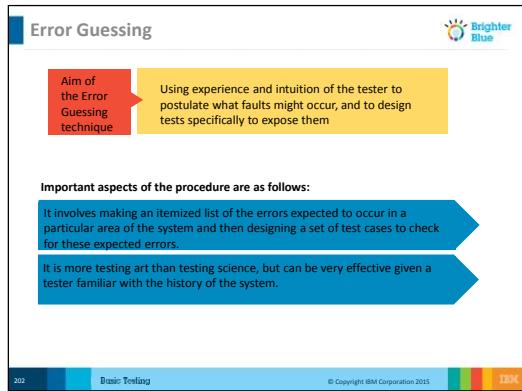
Slide Content	Instructor Guide	Use this space for your notes								
<p>Slide 196</p> <div data-bbox="264 421 777 812"> <p>Orthogonal Array Technique (OAT): Terminology </p> <p>Terminology for working with orthogonal arrays:</p> <table border="1"> <tr> <td>Runs</td> <td>Runs are the number of rows in the array. This directly translates to the number of test cases</td> </tr> <tr> <td>Factors</td> <td>Factors are the number of columns in an array. This directly translates to the maximum number of variables that can be handled by this array.</td> </tr> <tr> <td>Levels</td> <td>Levels are the maximum number of values that can be taken on by any single factor.</td> </tr> <tr> <td>Strength</td> <td>Strength is the number of columns it takes to see each of the levels-factors possibilities equally often</td> </tr> </table> <p>197 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	Runs	Runs are the number of rows in the array. This directly translates to the number of test cases	Factors	Factors are the number of columns in an array. This directly translates to the maximum number of variables that can be handled by this array.	Levels	Levels are the maximum number of values that can be taken on by any single factor.	Strength	Strength is the number of columns it takes to see each of the levels-factors possibilities equally often	<p>Purpose: To identify the key terms that are used in Orthogonal Array Technique (OAT)</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that there are 4 key terms in Orthogonal Array Technique (OAT). ▪ Name them and then define each of the terms. 	
Runs	Runs are the number of rows in the array. This directly translates to the number of test cases									
Factors	Factors are the number of columns in an array. This directly translates to the maximum number of variables that can be handled by this array.									
Levels	Levels are the maximum number of values that can be taken on by any single factor.									
Strength	Strength is the number of columns it takes to see each of the levels-factors possibilities equally often									

Slide Content	Instructor Guide	Use this space for your notes																
<p>Slide 197</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Example of OAT</p> <p>Parameters for placing a telephone call:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Call Type</th> <th>Billing</th> <th>Access</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Local</td> <td>Caller</td> <td>Loop</td> <td>Success</td> </tr> <tr> <td>Long Distance</td> <td>Collect</td> <td>ISDN</td> <td>Busy</td> </tr> <tr> <td>International</td> <td>800</td> <td>PBX</td> <td>Blocked</td> </tr> </tbody> </table> <p>The above table defines:</p> <ul style="list-style-type: none"> 4 Factors (Parameters) 3 Levels (Values) 81 Runs ($3^4 = 81$ different scenarios) <p style="text-align: right;">IBM Basic Testing © Copyright IBM Corporation 2015</p> </div>	Call Type	Billing	Access	Status	Local	Caller	Loop	Success	Long Distance	Collect	ISDN	Busy	International	800	PBX	Blocked	<p>Purpose: To explain OAT with the help of an example</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that once more we will take up an example to understand this category of testing technique. ▪ Explain the table and point out the three elements that it defines. 	
Call Type	Billing	Access	Status															
Local	Caller	Loop	Success															
Long Distance	Collect	ISDN	Busy															
International	800	PBX	Blocked															

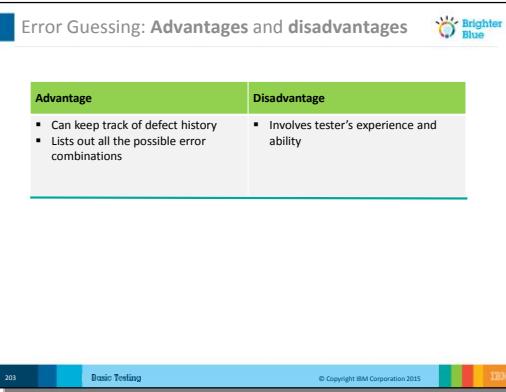
Slide Content	Instructor Guide	Use this space for your notes																																								
<p>Slide 198</p> <div style="border: 1px solid black; padding: 10px;"> <p>Pair-wise test cases for placing a phone call using OAT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #90EE90;"> <th>Call Type</th> <th>Billing</th> <th>Access</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Local</td> <td>Collect</td> <td>PBX</td> <td>Busy</td> </tr> <tr> <td>Long Distance</td> <td>800</td> <td>Loop</td> <td>Busy</td> </tr> <tr> <td>International</td> <td>Caller</td> <td>ISDN</td> <td>Busy</td> </tr> <tr> <td>Local</td> <td>800</td> <td>ISDN</td> <td>Blocked</td> </tr> <tr> <td>Long Distance</td> <td>Caller</td> <td>PBX</td> <td>Blocked</td> </tr> <tr> <td>International</td> <td>Collect</td> <td>Loop</td> <td>Blocked</td> </tr> <tr> <td>Local</td> <td>Caller</td> <td>Loop</td> <td>Success</td> </tr> <tr> <td>Long Distance</td> <td>Collect</td> <td>ISDN</td> <td>Success</td> </tr> <tr> <td>International</td> <td>800</td> <td>PBX</td> <td>Success</td> </tr> </tbody> </table> <p>198 Basic Testing © Copyright IBM Corporation 2015</p> </div>	Call Type	Billing	Access	Status	Local	Collect	PBX	Busy	Long Distance	800	Loop	Busy	International	Caller	ISDN	Busy	Local	800	ISDN	Blocked	Long Distance	Caller	PBX	Blocked	International	Collect	Loop	Blocked	Local	Caller	Loop	Success	Long Distance	Collect	ISDN	Success	International	800	PBX	Success	<p>Purpose: To explain Pair-wise Test cases</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ■ Pair-wise Test Cases for placing a phone call using OAT is shown in the slide to explain its concept. 	
Call Type	Billing	Access	Status																																							
Local	Collect	PBX	Busy																																							
Long Distance	800	Loop	Busy																																							
International	Caller	ISDN	Busy																																							
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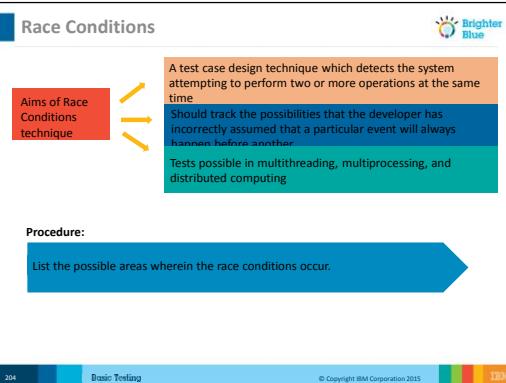
Slide Content	Instructor Guide	Use this space for your notes				
<p>Slide 199</p>  <table border="1" data-bbox="264 424 770 816"> <thead> <tr> <th data-bbox="264 424 559 481">Traditional test case versus test case based on OAT</th> <th data-bbox="559 424 770 481">Test Case based on OAT</th> </tr> </thead> <tbody> <tr> <td data-bbox="264 481 559 612"> <ul style="list-style-type: none"> ▪ Many scenarios to execute and time consuming ▪ High probability of some data getting missed out (during cons / test phase) </td> <td data-bbox="559 481 770 612"> <ul style="list-style-type: none"> ▪ Makes sure test cases are evenly / thoroughly distributed </td> </tr> </tbody> </table>	Traditional test case versus test case based on OAT	Test Case based on OAT	<ul style="list-style-type: none"> ▪ Many scenarios to execute and time consuming ▪ High probability of some data getting missed out (during cons / test phase) 	<ul style="list-style-type: none"> ▪ Makes sure test cases are evenly / thoroughly distributed 	<p>Purpose: To compare traditional test cases and test cases based on OAT</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that we will discuss another aspects of OAT. ▪ Differentiate between traditional test cases and test cases based on OAT. 	
Traditional test case versus test case based on OAT	Test Case based on OAT					
<ul style="list-style-type: none"> ▪ Many scenarios to execute and time consuming ▪ High probability of some data getting missed out (during cons / test phase) 	<ul style="list-style-type: none"> ▪ Makes sure test cases are evenly / thoroughly distributed 					

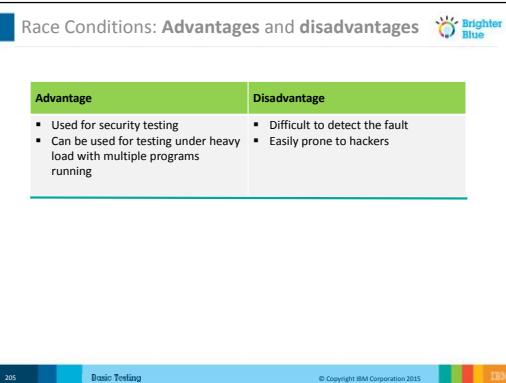
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 200</p> <div style="border: 1px solid black; padding: 10px;"> <p>Cause-Effect Graphing</p> <p>Aims of Cause-Effect Graphing</p> <ul style="list-style-type: none"> A graphical representation of inputs (causes) with their associated outputs (effects) used in designing test cases Brainstorm session to find out the related causes and effects until we reach the goal Producing non-redundant, high-yield tests <p>Example:</p>  <pre> graph TD Explain --> Write Explain --> Mouth Write --> Understand Mouth --> Noise Noise --> Enjoy Enjoy --> Dislike Ear --> Understand Ear --> Noise Noise --> Dislike Dislike --> Reply Understand --> Reply </pre> <p>Cause-Effect graph</p> </div>	<p>Purpose: To describe Cause-Effect Graphing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Explain to the participants the three aims of the Cause-Effect Graphing. • The diagram is an example that projects the cause and effect graph. 	

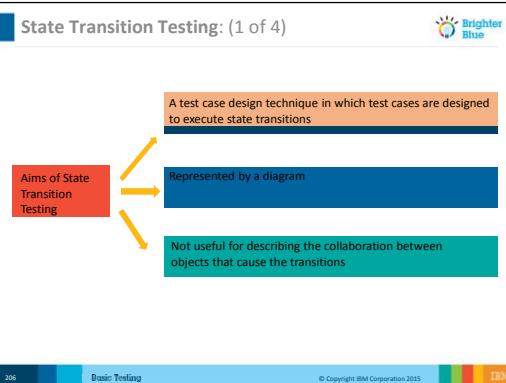
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 201</p> <div data-bbox="255 421 777 812" style="border: 1px solid #ccc; padding: 10px;"> <p>Error Guessing</p>  <p>Aim of the Error Guessing technique</p> <p>Using experience and intuition of the tester to postulate what faults might occur, and to design tests specifically to expose them</p> <p>Important aspects of the procedure are as follows:</p> <ul style="list-style-type: none"> It involves making an itemized list of the errors expected to occur in a particular area of the system and then designing a set of test cases to check for these expected errors. It is more testing art than testing science, but can be very effective given a tester familiar with the history of the system. <p>201 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div> <p>Aim:</p> <ul style="list-style-type: none"> ▪ A test case design technique where the experience and intuition of the tester is used to postulate what faults might occur, and to design tests specifically to expose them <p>Procedure:</p> <ul style="list-style-type: none"> ▪ Involves making an itemized list of the errors expected to occur in a particular area of the system and then designing a set of test cases to check for these expected errors 	<p>Purpose: To discuss the aim of Error Guessing technique and the key aspects of the procedure</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Begin by explaining the aims of the Error Guessing technique. ▪ Then point out the key aspects of this procedure. 	

Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ Empty or Null Strings / Lists▪ Zero Instances / Occurrences▪ It is more testing art than testing science, but can be very effective given a tester familiar with the history of the system.		

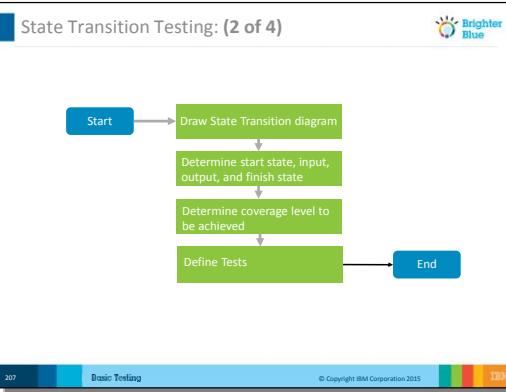
Slide Content	Instructor Guide	Use this space for your notes				
<p>Slide 202</p>  <table border="1" data-bbox="285 505 728 628"> <thead> <tr> <th>Advantage</th> <th>Disadvantage</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> ▪ Can keep track of defect history ▪ Lists out all the possible error combinations </td> <td> <ul style="list-style-type: none"> ▪ Involves tester's experience and ability </td> </tr> </tbody> </table>	Advantage	Disadvantage	<ul style="list-style-type: none"> ▪ Can keep track of defect history ▪ Lists out all the possible error combinations 	<ul style="list-style-type: none"> ▪ Involves tester's experience and ability 	<p>Purpose: To point out the advantages and disadvantages of Error Guessing technique</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Tell the participants that like every process, Error Guessing, too has its advantages and disadvantages. ▪ Now point out to list. 	
Advantage	Disadvantage					
<ul style="list-style-type: none"> ▪ Can keep track of defect history ▪ Lists out all the possible error combinations 	<ul style="list-style-type: none"> ▪ Involves tester's experience and ability 					

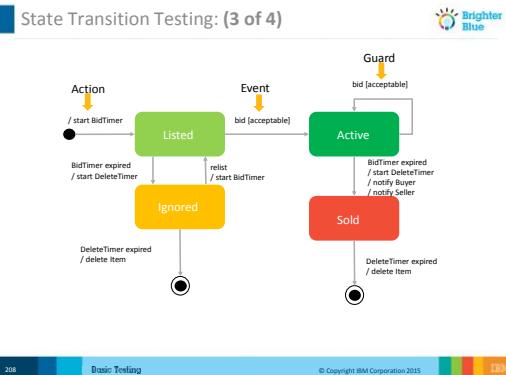
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 203</p>  <p>Aims of Race Conditions technique:</p> <ul style="list-style-type: none"> A test case design technique which detects the system attempting to perform two or more operations at the same time. Should track the possibilities that the developer has incorrectly assumed that a particular event will always happen before another. Tests possible in multithreading, multiprocessing, and distributed computing. <p>Procedure:</p> <ul style="list-style-type: none"> List the possible areas wherein the race conditions occur. <p>203 Basic Testing © Copyright IBM Corporation 2015 IBM</p> <p>Procedure:</p> <ul style="list-style-type: none"> List the possible areas wherein the race conditions occur: <ul style="list-style-type: none"> File open / close Variable checks Signals Access checks Locking 	<p>Purpose: To explain Race Condition technique</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Race Condition is another test design technique that the participants will learn about. Describe its aims and the procedure to the participants. Refer to the notes section of the slide (also in the Slide Content Column of this document) to describe the procedure further. 	

Slide Content	Instructor Guide	Use this space for your notes				
<p>Slide 204</p>  <table border="1" data-bbox="285 505 728 628"> <thead> <tr> <th>Advantage</th> <th>Disadvantage</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> ▪ Used for security testing ▪ Can be used for testing under heavy load with multiple programs running </td> <td> <ul style="list-style-type: none"> ▪ Difficult to detect the fault ▪ Easily prone to hackers </td> </tr> </tbody> </table> <p>205 Basic Testing © Copyright IBM Corporation 2015 </p>	Advantage	Disadvantage	<ul style="list-style-type: none"> ▪ Used for security testing ▪ Can be used for testing under heavy load with multiple programs running 	<ul style="list-style-type: none"> ▪ Difficult to detect the fault ▪ Easily prone to hackers 	<p>Purpose: To explain the advantages and disadvantages of Race Conditions technique</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Point out the advantages and disadvantages of this technique. 	
Advantage	Disadvantage					
<ul style="list-style-type: none"> ▪ Used for security testing ▪ Can be used for testing under heavy load with multiple programs running 	<ul style="list-style-type: none"> ▪ Difficult to detect the fault ▪ Easily prone to hackers 					

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 205</p>  <p>Aim:</p> <ul style="list-style-type: none"> ▪ A test case design technique in which test cases are designed to execute state transitions ▪ Represented by a diagram describing: <ul style="list-style-type: none"> ▪ All of the states that an object can have ▪ The events under which an object changes state (transitions) ▪ The conditions that must be fulfilled before the transition will occur (guards) 	<p>Purpose: To define State Transition Testing</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Mention it to the participants that State Transition Testing can be defined with the help of its aims. ▪ Now point out the three main aims of this technique. 	

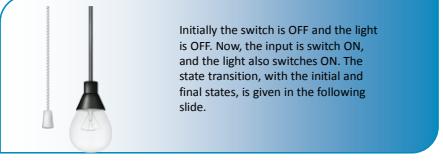
Slide Content	Instructor Guide	Use this space for your notes
<ul style="list-style-type: none">▪ The activities undertaken during the life of an object (actions)▪ Not useful for describing the collaboration between objects that cause the transitions		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 206</p>  <pre> graph TD Start([Start]) --> Draw[Draw State Transition diagram] Draw --> Determine1[Determine start state, input, output, and finish state] Determine1 --> Determine2[Determine coverage level to be achieved] Determine2 --> Define[Define Tests] Define --> End([End]) </pre>	<p>Purpose: To describe State Transition Testing procedure</p> <p>Approximate Duration: 2 mins</p> <p>What to cover: With the help of the diagram briefly explain the procedure of this technique.</p>	

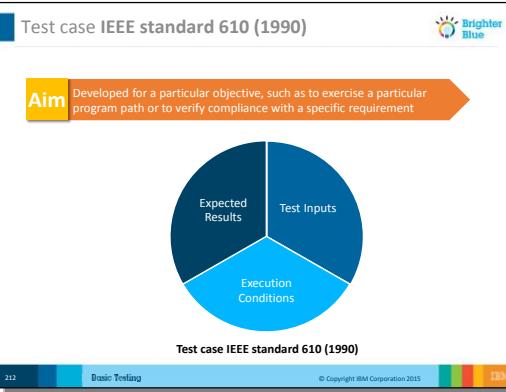
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 207</p>  <pre> graph LR Listed -- "bid [acceptable]" --> Active Listed -- "DeleteTimer expired / start DeleteTimer" --> Ignored Active -- "DeleteTimer expired / start DeleteTimer / notify Buyer / notify Seller" --> Sold Active -- "DeleteTimer expired / delete Item" --> Ignored Sold -- "DeleteTimer expired / delete Item" --> Ignored </pre>	<p>Purpose: To describe State Transition Testing diagram</p> <p>Approximate Duration: 5 mins</p> <p>What to cover: Here is another diagram that will help the participants to understand how State Transition Testing works.</p>	

Slide Content	Instructor Guide	Use this space for your notes										
<p>Slide 208</p> <div data-bbox="255 421 777 812"> <p>State Transition Testing: (4 of 4) </p> <table border="1"> <tr> <td>State:</td> <td> <ul style="list-style-type: none"> A condition during the life of an object in which it satisfies some conditions, performs some actions, or waits for some events </td> </tr> <tr> <td>Event:</td> <td> <ul style="list-style-type: none"> An occurrence that may trigger a state transition </td> </tr> <tr> <td>Guard:</td> <td> <ul style="list-style-type: none"> A Boolean expression which, if true, enables an event to cause a transition </td> </tr> <tr> <td>Transition:</td> <td> <ul style="list-style-type: none"> The change of state within an object </td> </tr> <tr> <td>Action:</td> <td> <ul style="list-style-type: none"> One or more actions taken by an object in response to a state change </td> </tr> </table> <p>208 Basic Testing © Copyright IBM Corporation 2015 </p> </div> <p>Terminology:</p> <ul style="list-style-type: none"> Notation: For those not familiar with the notation used for State Transition diagrams, some explanation is in order. State: A condition during the life of an object in which it satisfies some conditions, performs some actions, or waits for some events Event: An occurrence that may trigger a state transition. Event types include an explicit signal from outside the system, an invocation from inside the system, the passage of a designated 	State:	<ul style="list-style-type: none"> A condition during the life of an object in which it satisfies some conditions, performs some actions, or waits for some events 	Event:	<ul style="list-style-type: none"> An occurrence that may trigger a state transition 	Guard:	<ul style="list-style-type: none"> A Boolean expression which, if true, enables an event to cause a transition 	Transition:	<ul style="list-style-type: none"> The change of state within an object 	Action:	<ul style="list-style-type: none"> One or more actions taken by an object in response to a state change 	<p>Purpose: To list the key terms used in State Transition Testing</p> <p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Tell the participants that once again we are taking up the key terms that are used in a testing design. This time it is for State Transition Testing. Now describe the terms by following the tabular format. 	
State:	<ul style="list-style-type: none"> A condition during the life of an object in which it satisfies some conditions, performs some actions, or waits for some events 											
Event:	<ul style="list-style-type: none"> An occurrence that may trigger a state transition 											
Guard:	<ul style="list-style-type: none"> A Boolean expression which, if true, enables an event to cause a transition 											
Transition:	<ul style="list-style-type: none"> The change of state within an object 											
Action:	<ul style="list-style-type: none"> One or more actions taken by an object in response to a state change 											

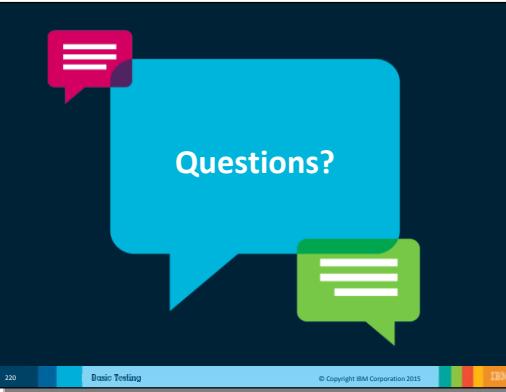
Slide Content	Instructor Guide	Use this space for your notes
<p>period of time, or a designated condition becoming true.</p> <ul style="list-style-type: none">▪ Guard: A Boolean expression which, if true, enables an event to cause a transition▪ Transition: The change of state within an object▪ Action: One or more actions taken by an object in response to a state change		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 209</p> <div data-bbox="264 424 777 807"> <p>Example of State Transition Testing</p> <p>Consider the example of a light switch:</p>  <p>Initially the switch is OFF and the light is OFF. Now, the input is switch ON, and the light also switches ON. The state transition, with the initial and final states, is given in the following slide.</p> <p>210 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Purpose: To explain State Transition Testing with the help of a scenario</p> <p>Approximate Duration: 2 mins</p> <p>What to cover: Tell the participants that finally here is a scenario that will explain the State Transition Testing better.</p>	

Slide Content	Instructor Guide	Use this space for your notes																				
<p>Slide 210</p> <div style="border: 1px solid black; padding: 10px;"> <p>Representation of state transition </p> <p>TEST</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th></th> <th>STEP1</th> <th>STEP2</th> <th>STEP3</th> </tr> </thead> <tbody> <tr> <td>START STATE</td> <td>OFF</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>INPUT</td> <td>SWITCH ON</td> <td>SWITCH OFF</td> <td>SWITCH ON</td> </tr> <tr> <td>OUTPUT</td> <td>LIGHT ON</td> <td>LIGHT OFF</td> <td>LIGHT ON</td> </tr> <tr> <td>FINISH STATE</td> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> </tbody> </table> <p>211 Basic Testing © Copyright IBM Corporation 2015 </p> </div>		STEP1	STEP2	STEP3	START STATE	OFF	ON	OFF	INPUT	SWITCH ON	SWITCH OFF	SWITCH ON	OUTPUT	LIGHT ON	LIGHT OFF	LIGHT ON	FINISH STATE	ON	OFF	ON	<p>Purpose: To point out how State Transition Testing is represented</p> <p>Approximate Duration: 2 mins</p> <p>What to cover: Show the table to mention how the state transition is represented.</p>	
	STEP1	STEP2	STEP3																			
START STATE	OFF	ON	OFF																			
INPUT	SWITCH ON	SWITCH OFF	SWITCH ON																			
OUTPUT	LIGHT ON	LIGHT OFF	LIGHT ON																			
FINISH STATE	ON	OFF	ON																			

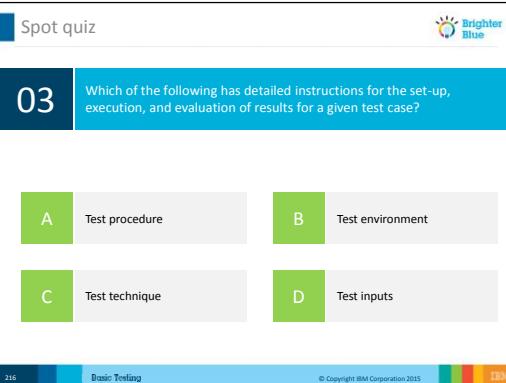
Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 211</p>  <p>A set of:</p> <ul style="list-style-type: none"> ▪ Test Inputs ▪ Execution Conditions ▪ Expected Results <p>Developed for a particular objective, such as to exercise a particular program path or to verify compliance with a specific requirement</p>	<p>Purpose: To explain Test Case IEEE standard 610 (1990)</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ This is an overview for the Test Case IEEE standard 610 (1990). ▪ While explaining it refer to the notes section of the slide (also in the Slide Content Column of this document). 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 212</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>What is a Test procedure?</p> <div style="display: flex; align-items: center;"> Test Procedure <ul style="list-style-type: none"> ▪ The detailed instructions for the set-up, execution, and evaluation of results for a given test case. ▪ A test case may use more than one test procedures. </div> <p>We will look at details of the procedures in the next few slides.</p> </div>	<p>Purpose: To explain test procedure</p> <p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Introduce the participants to what is test procedure. ▪ This is a new topic. Mention this. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 213</p>  <p>The key takeaways from this module are:</p> <ul style="list-style-type: none"> ▪ Identifying test conditions for designing test cases ▪ Describing categories and types of test design techniques ▪ Listing the components of a test case template 	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. ▪ Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ This question has multiple correct answers: <ul style="list-style-type: none"> • The correct answers are:- A. By identifying and testing one input of each partition, we gain a good coverage with small number of test cases. C. Testing one input of a partition should be as good as testing any inputs of the partition. 	

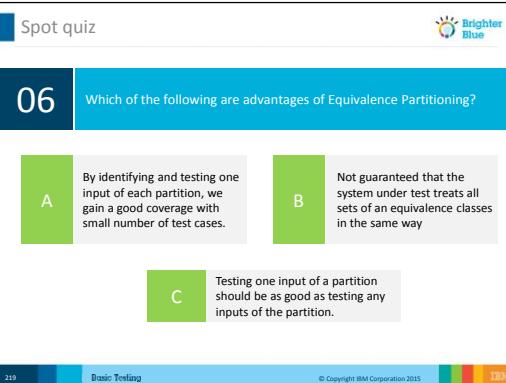
Slide Content	Instructor Guide	Use this space for your notes				
Slide 214 <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p>Spot quiz</p> <p>01 Test case template consists of:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center; padding: 5px;">A</td> <td style="width: 25%; text-align: center; padding: 5px;">B</td> </tr> <tr> <td style="text-align: center; padding: 5px;">C</td> <td style="text-align: center; padding: 5px;">D</td> </tr> </table> <p>214 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	A	B	C	D	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Ask the participants if they have any questions. • Include any questions that will be addressed later in the course as parking lot items. • Use this activity to recap the key takeaways from this module. 	
A	B					
C	D					

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 215</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Spot quiz</p> <p>02 In which type of testing technique do we only check the boundary values and + or - of those values?</p> <p>A Equivalence Partitioning B Decision Table Testing</p> <p>C Boundary Value Analysis D Orthogonal Array Technique</p> <p>215 Basic Testing © Copyright IBM Corporation 2015 IBM</p> </div>	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. ▪ Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is B. Selecting the best test. 	

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 216</p>  <p>03 Which of the following has detailed instructions for the set-up, execution, and evaluation of results for a given test case?</p> <p>A Test procedure B Test environment C Test technique D Test inputs</p> <p>216 Basic Testing © Copyright IBM Corporation 2015 IBM</p>	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. ▪ Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is C. Boundary Value Analysis. 	

Slide Content	Instructor Guide	Use this space for your notes								
<p>Slide 217</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Spot quiz</p> <p>04 Which of the following is not an aim of Cause – Effect Graphing?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center; padding: 5px;">A</td> <td>A graphical representation of inputs with their associated outputs used in designing test cases</td> <td style="width: 25%; text-align: center; padding: 5px;">B</td> <td>Brainstorm session to find out the related causes and effects until we reach the goal</td> </tr> <tr> <td style="text-align: center; padding: 5px;">C</td> <td>Tracking possibilities of incorrect assumptions of a particular event always happening before another</td> <td style="text-align: center; padding: 5px;">D</td> <td>Producing non-redundant, high-yield tests</td> </tr> </table> <p>217 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	A	A graphical representation of inputs with their associated outputs used in designing test cases	B	Brainstorm session to find out the related causes and effects until we reach the goal	C	Tracking possibilities of incorrect assumptions of a particular event always happening before another	D	Producing non-redundant, high-yield tests	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> • Ask the participants the question on the slide. Treat the question as a poll - Ask them to raise their hands based on their answer. • The correct answer is A. Test procedure. 	
A	A graphical representation of inputs with their associated outputs used in designing test cases	B	Brainstorm session to find out the related causes and effects until we reach the goal							
C	Tracking possibilities of incorrect assumptions of a particular event always happening before another	D	Producing non-redundant, high-yield tests							

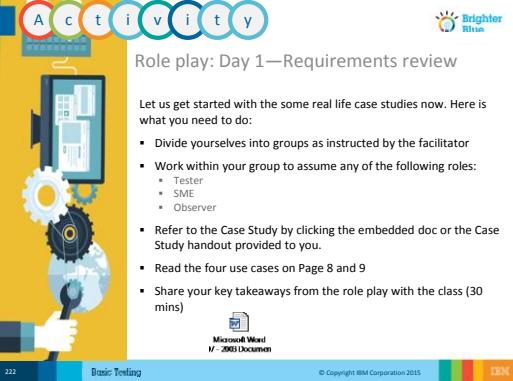
Slide Content	Instructor Guide	Use this space for your notes								
<p>Slide 218</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Spot quiz</p> <p>05 Which of the following is not an advantage of Boundary Value Analysis?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50px; background-color: #92D050; color: white; text-align: center;">A</td> <td>Very good at exposing potential user interface / user input problems</td> <td style="width: 50px; background-color: #92D050; color: white; text-align: center;">B</td> <td>Very clear guidelines on determining test cases</td> </tr> <tr> <td style="width: 50px; background-color: #92D050; color: white; text-align: center;">C</td> <td>Very small set of test cases generated</td> <td style="width: 50px; background-color: #92D050; color: white; text-align: center;">D</td> <td>Lists out all the possible error combinations</td> </tr> </table> <p>218 Basic Testing © Copyright IBM Corporation 2015 </p> </div>	A	Very good at exposing potential user interface / user input problems	B	Very clear guidelines on determining test cases	C	Very small set of test cases generated	D	Lists out all the possible error combinations	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. ▪ Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is C. Tracking possibilities of incorrect assumptions of a particular event always happening before another. 	
A	Very good at exposing potential user interface / user input problems	B	Very clear guidelines on determining test cases							
C	Very small set of test cases generated	D	Lists out all the possible error combinations							

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 219</p>  <p>06 Which of the following are advantages of Equivalence Partitioning?</p> <p>A By identifying and testing one input of each partition, we gain a good coverage with small number of test cases.</p> <p>B Not guaranteed that the system under test treats all sets of an equivalence classes in the same way</p> <p>C Testing one input of a partition should be as good as testing any inputs of the partition.</p>	<p>Approximate Duration: 2 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> ▪ Ask the participants the question on the slide. ▪ Treat the question as a poll - Ask them to raise their hands based on their answer. ▪ The correct answer is D. Lists out all the possible error combinations. 	

Module 5: Case Study

Slide Content	Instructor Guide	Use this space for your notes
Slide 220		

Slide Content	Instructor Guide	Use this space for your notes
 <p>At the end of this module, you should be able to:</p> <ul style="list-style-type: none"> • Review the test cases in the case study • Ask questions to SMEs to get clarifications on the use cases • Record the review observations and comments directly in OPAL template first and then enter into RQM to maintain the records 		
Slide 221	Approximate Duration: 20 mins	

Slide Content	Instructor Guide	Use this space for your notes
 <p>Activity</p> <p>Role play: Day 1—Requirements review</p> <p>Let us get started with the some real life case studies now. Here is what you need to do:</p> <ul style="list-style-type: none"> Divide yourselves into groups as instructed by the facilitator Work within your group to assume any of the following roles: <ul style="list-style-type: none"> Tester SME Observer Refer to the Case Study by clicking the embedded doc or the Case Study handout provided to you. Read the four use cases on Page 8 and 9 Share your key takeaways from the role play with the class (30 mins) <p>Microsoft Word 1 - 2003 Document</p> <p>© Copyright IBM Corporation 2015</p> <p>IBM</p>	<p>Additional Materials or Pre-session prep tasks:</p> <ul style="list-style-type: none"> Ensure that PCs have minimum 2.93 GHz Processor and 4 GB RAM (minimum 2GB), and 100 GB hard disk space Ask the participants to refer to the Supporting Documents_Day 1 folder for the embedded files. Software requirements: <ul style="list-style-type: none"> Platform: Microsoft Windows Operating System (OS): Microsoft Windows XP SP3 or higher Browser: Internet Explorer 8 and / or above Technologies used: Java/J2EE, JSP, XML, and Tomcat Software Tools: Rational Quality Manager (RQM) 4.0.3.1 for Test Management Database: MySQL Testing: Manual and RFT for Automation 	

Slide Content	Instructor Guide	Use this space for your notes
	<p>What to cover: Purpose: To elaborate the concepts of Reviews and Inspections</p> <p>Instructions for the participant:</p> <ul style="list-style-type: none"> • Divide yourselves into groups as instructed by the facilitator • Work within your group to assume any of the following roles: <ul style="list-style-type: none"> • Tester • SME • Observer • Refer to the Case Study by clicking the embedded doc or the Case Study handout provided to you. • Read the four use cases • Share your key takeaways from the role play with the class (30 mins) <p>Debrief:</p> <ul style="list-style-type: none"> • Discuss the key factors required to communicate with the SME in terms of written and verbal. 	

Slide Content	Instructor Guide	Use this space for your notes
	<ul style="list-style-type: none"> Explain the correct method based on any errors the participants may have introduced to the process of recording the defects / review comments. 	
Slide 222 <div data-bbox="264 612 777 1003"> <p>Role play: What will the Tester do?</p> <p>When you play the role of the tester, you also have an SME and an observer in your team for this role play.</p> <p>You need to:</p> <ul style="list-style-type: none"> Review the test cases in the case study Ask questions to SMEs to get clarifications on the use cases as well Record the review observations and comments directly in RQM or in OPAL template first and then enter into RQM to maintain the records Document your observations from the conversation </div>		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 223</p> <div data-bbox="264 408 770 799"><p>Role play: What will the SME do?</p><ul style="list-style-type: none">* When you play the role of the SME, you also have a tester and an observer in your team for this role playYou need to:<ul style="list-style-type: none">* Read the test cases to the team and pose relevant queries to the tester* Hear responses from the tester</div> <p>223 Basic Testing © Copyright IBM Corporation 2015 NEW</p>		

Slide Content	Instructor Guide	Use this space for your notes
<p>Slide 224</p> <div data-bbox="264 408 770 799" style="border: 1px solid black; padding: 10px;"> <p>Role play: What will the Observer do? </p> <ul style="list-style-type: none"> ▪ When you play the role of the observer in this role play, you also have a tester and a SME in your team <p>You need to:</p> <ul style="list-style-type: none"> ▪ Closely observe the dialogue between the tester and a SME ▪ Refer to the responses for the scenarios in your handout ▪ Document your feedback for the tester based on your observation of the role play <p style="font-size: small;">225 Basic Testing © Copyright IBM Corporation 2015 </p> </div>		

Slide Content	Instructor Guide	Use this space for your notes
Slide 225  225 Basic Testing © Copyright IBM Corporation 2015	<p>Approximate Duration: 5 mins</p> <p>What to cover:</p> <ul style="list-style-type: none"> Ask the participants if they have any questions. Include any questions that will be addressed later in the course as parking lot items Use this activity to recap the key takeaways from this module 	