SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 19CS511 SOFTWARE TESTING

III YEAR / V SEMESTER

Unit 3- LEVELS OF TESTING

Topic 2 : Unit Testing

This technique effectively helps in validating the accuracy of a section of code by considering stubs, mock objects, drivers, and unit testing frameworks. Justify ?
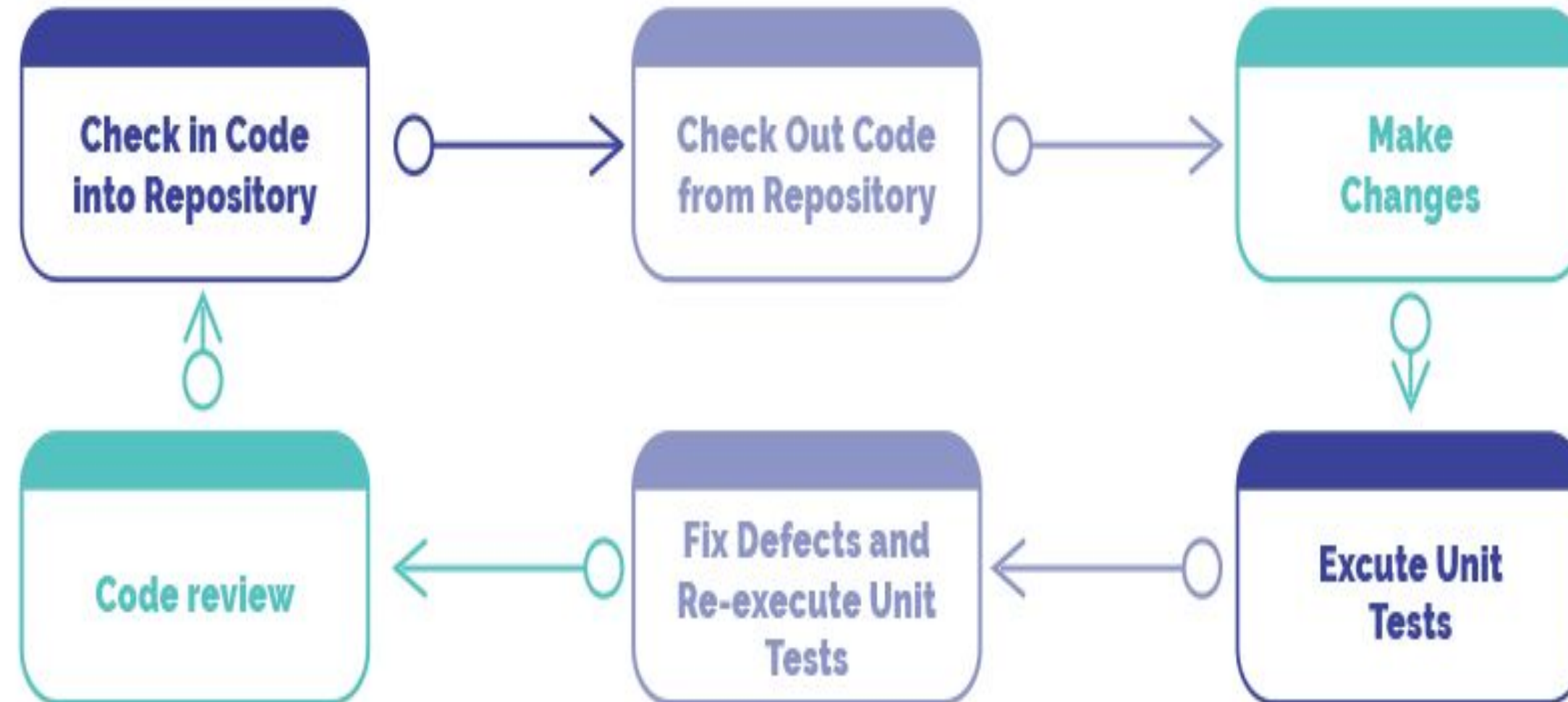
What is Unit Testing?

UNIT TESTING is a type of software testing where individual units or components of a software are tested.

The purpose is to validate that each unit of the software code performs as expected. Unit Testing is done during the development (coding phase) of an application by the developers.

Unit Tests isolate a section of code and verify its correctness. A unit may be an individual function, method, procedure,

UNIT TEST LIFE CYCLE

Unit Testing is important because software developers sometimes try saving time doing minimal unit testing and this is myth because inappropriate unit testing leads to high cost <u>Defect</u> is important because software developers sometimes try saving time doing minimal unit testing and this is myth because inappropriate unit testing leads to high cost Defect fixing during <u>System Testing</u> is important because software developers sometimes try saving time doing minimal unit testing and this is myth because inappropriate unit testing leads to high cost Defect fixing during System Testing, <u>Integration Testing</u> and even Beta Testing after application is built. If proper unit testing is done in early development, then it saves time and money in the end.

The key reasons to perform unit testing in software engineering:

Unit tests help to fix bugs early in the development cycle and save costs.

It helps the developers to understand the testing code base and enables them to make changes quickly

Good unit tests serve as project documentation

Unit tests help with code re-use. Migrate both your code **and** your tests to your new project. Tweak the code until the tests run again

Unit Testing Techniques

Code coverage techniques used in Unit Testing are listed below:

Statement Coverage

Decision Coverage

Branch Coverage

Condition Coverage

Finite State Machine Coverage

Activity

Advantages	Disadvantages
Developers looking to learn what functionality is provided by a unit and how to use it can look at the unit tests to gain a basic understanding of the unit API.	Unit testing can't be expected to catch every error in a program. It is not possible to evaluate all execution paths even in the most trivial programs
Unit testing allows the programmer to refactor code at a later date, and make sure the module still works correctly (i.e. Regression testing).	Unit testing by its very nature focuses on a unit of code. Hence it can't catch integration errors or broad system level errors.
The procedure is to write test cases for all functions and methods so that whenever a change causes a fault, it can be quickly identified and fixed.	
Due to the modular nature of the unit testing, we can test parts of the project without waiting for others to be completed.	

Assessment 1

1. List out the Advantages of unit testing

   a)_____

   b)_____

   c)_____

   d)_____

2. Identify the Disadvantages of unit testing

   a)_____

   b)_____

   c)_____

   d)_____

TEXT BOOKS:

1. Ricardo Baeza-Yates and Berthier Ribeiro-Neto, —Modern Information Retrieval: The Concepts and Technology behind Search, Second Edition, ACM Press Books, 2011.

2. Ricci, F, Rokach, L. Shapira, B.Kantor, —Recommender Systems Handbook‖, First Edition, 2011.

REFERENCES:

1. C. Manning, P. Raghavan, and H. Schütze, —Introduction to Information Retrieval, Cambridge University Press, 2008.

2. Stefan Buettcher, Charles L. A. Clarke and Gordon V. Cormack, —Information Retrieval: Implementing and Evaluating Search Engines, The MIT Press, 2010.

THANK YOU