Branch out using Classification Trees for test case design

Julie Gardiner
Grove Consultants
1 Holbeck Mews
Filey Road
Scarborough
YO11 2YQ
Tel +44 7974 141436
Julie@grove.co.uk

www.grove.co.uk
© Grove Consultants

Interesting information about trees

- they help to conserve energy
- various items can be produced using trees
- tree rings can provide precise information
- they help reduce air pollution
- they also help to maintain a favourable climate
Interesting information about classification trees

- they help to conserve the tester’s energy when generating and maintaining test cases
- various test items can be produced using classification trees
- classification trees can provide precise information about coverage
- they help reduce documentation pollution
- they also help to maintain a favourable climate with the business users

Agenda

- fundamentals of CT
- how to apply CT to various lifecycles
- where it fits in with other techniques
- benefits & rewards from using CT
- when & when not to use CT
Classification Trees

Background to CT

- developed from Category-Partition Method by Ostrand and Balcer 1993
- systematic approach to test case design
  - complements other techniques
- used in many industries
  - aviation, rail, space technology and data processing applications
- my background with CT

Benefits & rewards from using CT

- maintenance of test cases
  - easier & more cost effective
- visibility of testing scope
  - for new projects
  - regression testing
- user buy-in
  - great visual for gaining acceptance
- exports to other testing tools
Fundamentals of CT

1. choose test object e.g. component or system function
2. determine input domain
3. determine relevant factors affecting testing
4. form classifications by partitioning input domain into classes
5. apply 3. and 4. recursively as appropriate
6. form combination table from classification tree and identify test cases

Example – ATM machine

Balance enquiry

Cash Withdrawal

Statement request

Change pin

Another transaction?
Classification Trees

Classification tree - business tests

Classification tree - functional test

© Grove Consultants UK
Classification Trees

Classification tree - component test

Let’s try it out…

- demo
- exercise
Example

- project – edge of the insurance/re-insurance market
- lots of discreet parts of the system, which is policy admin
- several key choices
  - rules about which could go with which
  - decision made to use CT and make sure that all possibilities were covered

Source: Peter Morgan, independent consultant - UK

What the critics say…

- isn’t this just Equivalence partitioning (classes)?
- what about Boundary Value analysis?
- how does it fit with other techniques?
- can you use it in exploratory testing?
- what about non-functional testing?
- too many tests are produced (some unrealistic)
Classification Trees

How to apply CT to various lifecycles

- **traditional**
  - requirement specification
    - a tree for every piece of functionality?
- **agile**
  - user stories
    - a tree for every postcard?
  - use cases
    - a tree for every actor?

---

Top tips when starting to use CT

- **if your trees become too large**
  - break it down with references to the higher level tree (folding)
- **start off small (high level)**
- **give yourself time to apply the technique**
When to use (or not use) CT

- **use it when**
  - maintenance of test cases is difficult
  - discussing test conditions
  - raising profile of testing to managers
  - you are keen to get buy in from users

- **do not use it**

---

To summarize

- classification trees is a graphical way of showing test cases
- can be applied at any level of testing
- it could be used in any organization
- it might complement other testing techniques
- use it to raise visibility of test cases and improve maintainability
Thank you!

Julie Gardiner
Grove Consultants
1 Holbeck Mews
Filey Road
Scarborough
YO11 2YQ
Tel +44 7974 141436
Julie@grove.co.uk