learning outcomes

• Evaluate the “testability” of functional and nonfunctional requirements, individually and holistically

• List several analysis models that are valuable for test planning and analysis

• Analyze functional and nonfunctional tests

• Describe the purpose of test analysis
your worst UNtestable requirement?
testable requirements

What does that mean?

How do you assess testability?

Will the test yield an observable result?

Early, holistic testing?
product
## 7 product dimensions

<table>
<thead>
<tr>
<th>User</th>
<th>Interface</th>
<th>Action</th>
<th>Data</th>
<th>Control</th>
<th>Environment</th>
<th>Quality Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users interact with the product</td>
<td>The product connects to users, systems, and devices</td>
<td>The product provides capabilities for users</td>
<td>The product includes a repository of data and useful information</td>
<td>The product enforces constraints</td>
<td>The product conforms to physical properties and technology platforms</td>
<td>The product has certain properties that qualify its operation and development</td>
</tr>
</tbody>
</table>
models

User
persona
user role map

Interface
context diagram
prototype
relationship map

Action
business process diagram
capability map
dependency graph
story, story map
use case
value stream map

Data
data model
state diagram

Control
business policy, rule
decision table
decision tree
7 product dimensions

Functional

User | Interface | Action | Data | Control | Environment | Quality Attribute

Nonfunctional
Attend the Agile Event of 2014!

July 28 - August 1
Gaylord Palms Resort & Convention Center
Orlando, Florida, USA

Register now while space is available and join over 1,800 of the most passionate, influential Agile professionals on the planet for an in-depth week of learning, sharing, collaborating, and networking.

Conference Links

- Hotel Accommodations
- Conference FAQ
- Attendee Resources
- Pre-Conference Planner (PDF)
- Sponsorship Portfolio (PDF)
- Sponsor Pledge form (PDF)
Andy, an Agile 2014 Conference Attendee

I’m looking forward to attending the conference. My life is crazy-busy so I need to get registered as quickly and easily as possible.

I understand there are many registration options so I need to be clear on what’s the best deal for me.
User Role Map

Represents types of users and their relationships
Decision Table
Specifies a set of conditions to reach a business conclusion

<table>
<thead>
<tr>
<th>Registration Type</th>
<th>Registration Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Super Early Bird</td>
</tr>
<tr>
<td>Agile Alliance Member</td>
<td>1649</td>
</tr>
<tr>
<td>Non Agile Alliance Member</td>
<td>2399</td>
</tr>
<tr>
<td>Group members (5-19 members)</td>
<td>1849</td>
</tr>
<tr>
<td>Group members (20 &amp; more)</td>
<td>contact Registration Coordinator</td>
</tr>
<tr>
<td>Academic</td>
<td>999</td>
</tr>
<tr>
<td>Vendor, Volunteer</td>
<td>0</td>
</tr>
</tbody>
</table>
Process Diagram
Shows flows between actions
Data Model

Shows logical structure of data and their relationships
role play
Conference Registration
<table>
<thead>
<tr>
<th><strong>Story</strong></th>
<th>As an Agile Alliance Member, I want to register for the conference so I can get the best rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scenario</strong></td>
<td>Attendee’s Agile Alliance Member’s Account is inactive</td>
</tr>
<tr>
<td><strong>Business rule</strong></td>
<td>Attendee’s Agile Alliance Membership must be active to qualify for the Agile Alliance discounted registration fee.</td>
</tr>
<tr>
<td><strong>Given</strong></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>precondition</strong>&lt;br&gt;(state)</td>
<td>Attendee selected Registration type of AA Member</td>
</tr>
<tr>
<td><strong>fixed data</strong></td>
<td>Member email: <a href="mailto:agileandy@superagile.com">agileandy@superagile.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>When</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>action</strong></td>
<td>Verify eligibility for AA member registration fee</td>
</tr>
<tr>
<td><strong>input data</strong></td>
<td>Member email: <a href="mailto:agileandy@superagile.com">agileandy@superagile.com</a>&lt;br&gt;Registration date: 2014-06-22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Then</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>output</strong></td>
<td>Message: your AA Membership is not active. Please select another registration type or update your membership here.</td>
</tr>
<tr>
<td><strong>postcondition</strong>&lt;br&gt;(state)</td>
<td>N/A</td>
</tr>
</tbody>
</table>
your turn...
functional
test analysis ?s
your turn

Cancel Registration

exercise details will be provided in the session
your turn…
functional
test analysis ?s
7 product dimensions

functional

- User
- Interface
- Action
- Data
- Control
- Environment
- Quality Attribute

nonfunctional
Environment

Operational
Where will product be used?

Development
What software and hardware will be used to develop and operate the product?
**Context Diagram**

Illustrates interfaces to/from product

**Interface**

- Attendee
- registration request
- confirmation
- AA member email
- Agile Alliance
- membership expiration date
- Agile 2014 Registration

**Credit Bureau**
Quality Attribute

availability
interoperability
performance
efficiency
testability…

FURPS+

ISO/IEC 25010:2011
System and software quality models

ISO/IEC/IEEE 29119
Software Testing Standard
<table>
<thead>
<tr>
<th><strong>planguage</strong></th>
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<tbody>
<tr>
<td><strong>gist</strong></td>
</tr>
<tr>
<td><strong>stakeholder</strong></td>
</tr>
<tr>
<td><strong>scale</strong></td>
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<tr>
<td><strong>meter</strong></td>
</tr>
<tr>
<td><strong>must</strong></td>
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<tr>
<td><strong>targets</strong></td>
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<tr>
<td><strong>plan</strong></td>
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<tr>
<td><strong>stretch</strong></td>
</tr>
<tr>
<td><strong>wish</strong></td>
</tr>
<tr>
<td><strong>benchmarks</strong></td>
</tr>
<tr>
<td><strong>past</strong></td>
</tr>
<tr>
<td><strong>trend</strong></td>
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Source: Tom Gilb; Erik Simmons
your turn
planguage

exercise details will be provided in the session
your turn...
nonfunctional test analysis ?s
holistic

testable requirements
models

G-W-T

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<th>Given</th>
<th>precon</th>
<th>Attendee…</th>
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<td></td>
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<tr>
<td>Then</td>
<td>output</td>
<td>Message:…</td>
</tr>
<tr>
<td></td>
<td>postcon</td>
<td>NA…</td>
</tr>
</tbody>
</table>

specs

gist | Availability of
stakeholder | Attendee
scale | Percent of time
meter | Measurement
must | 90%
targets
plan | 7 a.m. …
stretch | 5 a.m.…..
wish | Ideally
benchmarks
past
trend | Conference
Test Analysis for Better Agile Requirements

thanks for joining us!

email:    mary@ebgconsulting.com
twiegmann@quicksolutions.com