Institut Supérieur des Etudes Technologiques de Radès

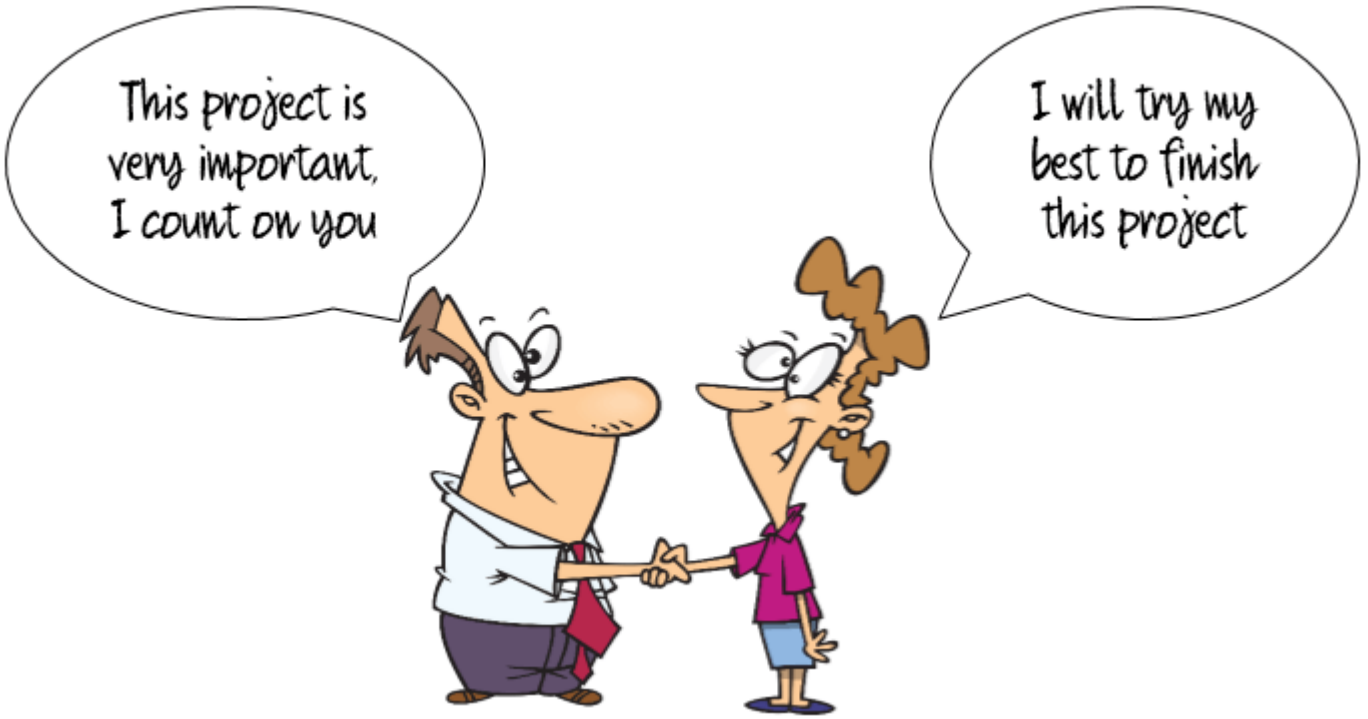
Master: Développement des applications mobiles

Test et performance des logiciels

CHAPTER 5:

TEST MANAGEMENT

S. BEJI, Janvier 2020


This project is very important, I count on you
I will try my best to finish this project


This is the first time I have become a Test Manager
I don't know even what the Test Management is ?

Test management plan

5.1 Test Organization

5.2 Test Planning and Estimation

5.3 Test Monitoring and Control

~~5.4 Configuration Management~~

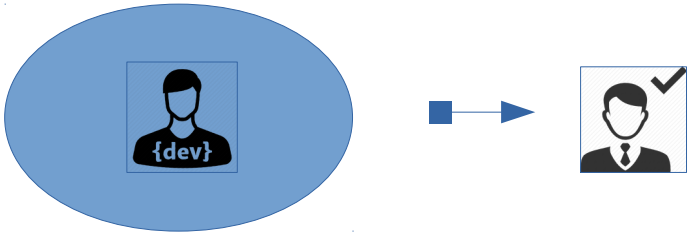
5.5 Risk and Testing

5.6 Defect management

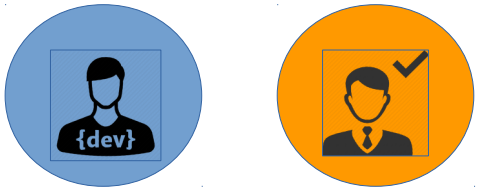
5.1 Test Organization

5.1.1 Independent Testing :

- For most types of projects, it is usually best to have multiple test levels.

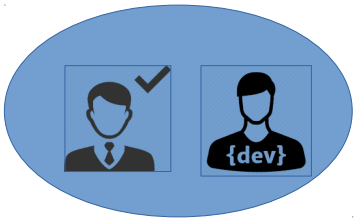


External Tester (Independant)

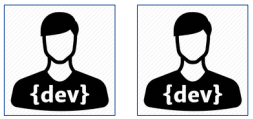


Tester in the same organisation but in other team

Tester Within the same team



Developer = Tester



5.1 Test Organization

Potential benefits of test independence include:

- Independent testers are likely to **recognize different kinds of failures compared to developers** because of their different backgrounds, technical perspectives, and biases
- An independent tester can **verify, challenge, or disprove assumptions made by stakeholders** during specification and implementation of the system
- Independent testers of a vendor can **report** in an upright and **objective manner** about the system under test **without** (political) **pressure of the company that hired them**.

5.1 Test Organization

Potential drawbacks of test independence include:

- **Isolation from the development team, may lead to a lack of collaboration**, delays in providing feedback to the development team, or an adversarial relationship with the development team
- **Developers** may lose a sense of **responsibility** for **quality**
- Independent testers may be seen as a **bottleneck**
- Independent testers may **lack some important** information (e.g., **about the test object**)

Knowledge check

Which of the following are valid justifications for developers testing their own code during unit testing?

(i) Their lack of independence is reduced by independent testing during system and acceptance testing.

(ii) A person with a good understanding of the code can find more defects more quickly using white-box techniques.

(iii) Developers have a better understanding of the requirements than testers.

(iv) Testers write unnecessary incident reports because they find minor differences between the way in which the system behaves and the way in which it is specified to work.

A. (i) and (ii)

B. (i) and (iv)

C. (ii) and (iii)

D. (iii) and (iv)

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~~**B. (i) and (iv)**~~

~~**C. (ii) and (iii)**~~

~~**D. (iii) and (iv)**~~

Test management plan

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~~5.4 Configuration Management~~

5.5 Risk and Testing

5.6 Defect management

5.1 Test Organization

5.1.2 Tasks of the Test Leader (Test manager) and Tester :

- The test manager is tasked with overall **responsibility for the test process** and successful leadership of the test activities.
- The test management role might be **performed** by a **professional test manager, or by a project manager, a development manager, or a quality assurance manager**.
- In larger projects or organizations, several test teams may report to a test manager, test coach, or test coordinator, each team being headed by a test leader or lead tester.

5.1 Test Organization

Typical test manager tasks may include:

1) **Develop or review a test policy and test strategy** for the organization. Example

2) **Plan the test activities** by considering the context, and understanding the test objectives and risks. This may include **selecting test approaches, estimating test time, effort and cost, acquiring resources, defining test levels and test cycles, and planning defect management**

3) **Write and update the test plan(s)**

4) **Coordinate the test plan(s)** with project managers, product owners, and others

5.1 Test Organization

5) Share testing perspectives with other project activities, such as integration planning

6) Initiate the analysis, design, implementation, and execution of tests, monitor test progress and results, and check the status of exit criteria (or definition of done) and facilitate test completion activities

7) **Prepare and deliver test progress reports** and test summary reports based on the information gathered

8) **Adapt planning based on test results** and progress (sometimes documented in test progress reports, and/or in test summary reports for other testing already completed on the project) and take any actions necessary for test control

9) **Support** setting up the **defect management system** and adequate **configuration management** of testware

5.1 Test Organization

10) Introduce **suitable metrics for measuring test progress** and evaluating the quality of the testing and the product

11) Support the **selection and implementation of tools to support the test process**, including recommending the budget for tool selection (and possibly purchase and/or support), allocating time and effort for pilot projects, and providing continuing support in the use of the tool(s)

12) **Decide** about the implementation of **test environment(s)**

13) **Promote and advocate the testers**, the test team, and the test profession within the organization

14) Develop the skills and careers of testers (e.g., through **training** plans, performance evaluations, **coaching**, etc.)

Knowledge Check

Which tasks would USUALLY be performed by a test leader and which by the tester ?

a) Adapt planning based on test results.
b) Create test specifications.
c) Plan tests.
d) Write or review a test strategy

Choose the right answer :

A. c and d by the test leader; a and b by the tester
B. a and b by the test leader; c and d by the tester.
C. a and d by the test leader; b and c by the tester
D. a, c and d by the test leader; b by the tester.

Knowledge Check

Which tasks would USUALLY be performed by a test leader and which by the tester ?

a) Adapt planning based on test results.
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Answer:

A. c and d by the test leader; a and b by the tester
B. a and b by the test leader; c and d by the tester.
C. a and d by the test leader; b and c by the tester
D. a, c and d by the test leader; b by the tester.

Knowledge Check

Which of the following would TYPICALLY be carried out by a test leader and which by a tester ?

a. Creation of a test strategy.
b. Creation of a test specification.
c. Raising of an incident report.
d. Write a test summary report.

Choose the right answer :

A. a and b would be carried out by a test leader, whilst c and d would be carried out by a tester
B. b and c would be carried out by a test leader, whilst a and d would be carried out by a tester
C. a and d would be carried out by a test leader, whilst b and c would be carried out by a tester
D. a and c would be carried out by a test leader, whilst b and d would be carried out by a tester

Knowledge Check

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C. a and d would be carried out by a test leader, whilst b and c would be carried out by a tester
D. a and c would be carried out by a test leader, whilst b and d would be carried out by a tester

5.1 Test Organization

Typical tester tasks may include:

1. Review and **contribute to test plans**
2. **Analyze, review, and assess requirements, user stories and acceptance criteria**, specifications, and models for testability (i.e., the test basis)
3. Identify and document test conditions, and capture traceability between test cases, test conditions, and the test basis
4. **Design, set up, and verify test environment(s)**, often coordinating with system administration and network management
5. **Design and implement test cases and test procedures**
6. **Prepare and acquire test data**

5.1 Test Organization

7. **Create the detailed test execution schedule**

8. **Execute tests, evaluate the results**, and document deviations from expected results

9. Use appropriate tools to facilitate the test process

10. **Automate tests** as needed (may be supported by a developer or a test automation expert)

11. **Evaluate non-functional characteristics** such as performance efficiency, reliability, usability, security, compatibility, and portability

12. Review tests developed by others

Knowledge Check

When considering the roles of test leader and tester, which of the following tasks would NOT typically be performed by a tester?

A. Prepare and acquire the test data
B. Set up and check the test environment
C. Write test summary reports
D. Review tests developed by others

Knowledge Check

When considering the roles of test leader and tester, which of the following tasks would NOT typically be performed by a tester?

A. Prepare and acquire the test data
B. Set up and check the test environment
C. Write test summary reports
D. Review tests developed by others

Knowledge Check

Which of the tasks below is typically done by a tester (not a test manager) ?

A. Support setting up the defect management system.
B. Share testing perspectives with other project activities such as integration planning.
C. Design, set up and verify test environment(s).
D. Initiate the analysis, design, implementation and execution of tests.

Knowledge Check

Which of the tasks below is typically done by a tester (not a test manager) ?

A. Support setting up the defect management system.
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Test management plan

5.1 Test Organization

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~~5.4 Configuration Management~~

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5.2 Test Planning and Estimation

5.2.1 Test Planning :

- The outline of a test-planning document is covered by the « Standard for Software Test Documentation » (IEEE Std 829-1998).
- Test planning is a continuous activity and is performed in all life cycle processes and activities. Feedback from test activities is used to recognize changing risks so that planning can be adjusted.

5.2.2 Test Planning Activities :

Test planning activities may include the following and some of these may be documented in a test plan:

- Determining the **scope, objectives, and risks of testing**
- Defining the overall **approach of testing**
- Integrating and **coordinating** the **test activities into the software lifecycle activities**

5.2 Test Planning and Estimation

- Making decisions about what to test, the **people and other resources required to perform the various test activities**, and how test activities will be carried out
- **Scheduling** of test analysis, design, implementation, execution, and evaluation activities, either on particular dates (e.g., in sequential development) or in the context of each iteration (e.g., in iterative development)
- **Selecting metrics for test monitoring and control**
- **Budgeting** for the test activities
- Determining **the level of detail** and structure for test documentation (e.g., by providing templates or example documents)

5.2 Test Planning and Estimation

5.2.3 Entry Criteria :

Entry criteria define the preconditions for undertaking a given test activity.

Typical entry criteria include:

- Availability of testable requirements, user stories, and/or models (e.g., when following a model-based testing strategy)
- Availability of test items that have met the exit criteria for any prior test levels
- Availability of test environment
- Availability of necessary test tools
- Availability of test data and other necessary resources

5.2 Test Planning and Estimation

5.2.4 Exit Criteria :

Exit criteria define what conditions must be achieved in order to declare a test level or a set of tests completed.

Typical exit criteria include:

- Planned tests have been executed
- A defined level of coverage (e.g., of requirements, user stories, acceptance criteria, risks, code) has been achieved
- The number of unresolved defects is within an agreed limit
- The number of estimated remaining defects is sufficiently low
- The evaluated levels of reliability, performance efficiency, usability, security, and other relevant quality characteristics are sufficient

5.2 Test Planning and Estimation

5.2.5 Test Estimation :

Two approaches for the estimation of test effort are :

- The **metrics-based approach** : estimating the testing effort based on **metrics of former or similar projects** or based on typical values.
- The **expert-based approach** : estimating the tasks based on estimates made by the owner of the tasks or by experts.

5.2.6 Test strategy, test Approach :

- The test approach is the implementation of the test strategy for a specific project.

- The test approach is defined and refined in the test plans and test design.

5.2 Test Planning and Estimation

5.2.6 Test strategy, test Approach :

- The test approach is the implementation of the test strategy for a specific project.

- The test approach is defined and refined in the test plans and test design.

Knowledge check

Which of the following metrics are useful for monitoring the test progress?

A. Percentage of work done in test environment preparation

B. Percentage of work done on the user’s manuals

C. The number of features implemented in the code

D. The number of changes done to the product's requirements

Knowledge check

Which of the following metrics are useful for monitoring the test progress?

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Knowledge check

Which of the following is a MAJOR activity of test planning?

A. Initiation of corrective actions
B. Measuring and analysing results
C. Determining the exit criteria
D. Monitoring and documenting progress

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A. Initiation of corrective actions
B. Measuring and analysing results
C. Determining the exit criteria
D. Monitoring and documenting progress

Knowledge check

Which of the following is NOT a factor on which test estimation is dependent upon?

A. Defect debugging and resolution
B. The outcome of testing of previous test cycle
C. Characteristics of the development process
D. Characteristics of the product

Knowledge check

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A. Defect debugging and resolution
B. The outcome of testing of previous test cycle
C. Characteristics of the development process
D. Characteristics of the product

5.2 Test Planning and Estimation

Typical approaches include :

- **Analytical**: This type of test strategy is based on an analysis of some factor (e.g., requirement or risk). Risk-based testing is an example of an analytical approach, where tests are designed and prioritized based on the level of risk.
- **Model-Based**: In this type of test strategy, tests are designed based on some model of some required aspect of the product, such as a function, a business process, an internal structure, or a non-functional characteristic (e.g., reliability). Examples of such models include business process models, state models, and reliability growth models.

5.2 Test Planning and Estimation

- **Methodical**: This type of test strategy relies on making systematic use of some predefined set of tests or test conditions, such as a taxonomy of common or likely types of failures, a list of important quality characteristics, or company-wide look-and-feel standards for mobile apps or web pages.
- **Process-compliant** (or standard-compliant): This type of test strategy involves analyzing, designing, and implementing tests based on external rules and standards, such as those specified by industry-specific standards, by process documentation, by the rigorous identification and use of the test basis, or by any process or standard imposed on or by the organization.
- **Directed** (or consultative):This type of test strategy is driven primarily by the advice, guidance, or instructions of stakeholders, business domain experts, or technology experts, who may be outside the test team or outside the organization itself.

5.2 Test Planning and Estimation

- **Regression-averse**: This type of test strategy is motivated by a desire to avoid regression of existing capabilities. This test strategy includes reuse of existing testware (especially test cases and test data), extensive automation of regression tests, and standard test suites.
- **Reactive**: In this type of test strategy, testing is reactive to the component or system being tested, and the events occurring during test execution, rather than being pre-planned (as the preceding strategies are). Tests are designed and implemented, and may immediately be executed in response to knowledge gained from prior test results. Exploratory testing is a common technique employed in reactive strategies.

Test management plan

5.1 Test Organization

5.2 Test Planning and Estimation

5.3 Test Monitoring and Control

~~5.4 Configuration Management~~

5.5 Risk and Testing

5.6 Defect management

5.3 Test Monitoring and Control

5.3.1 Test Progress Monitoring :

- The purpose of test monitoring is to provide feedback and visibility about test activities.

- Common test metrics include :

- Percentage of work done in test case preparation.
- Percentage of work done in test evironment preparation.
- Test case execution (e.g., number of test cases run/not run, and test cases passed/failed)
- Defect information (e.g., defect density, defects found and fixed, failure rate, and re-test results)
- Test coverage of requirements, risks or code.

5.3 Test Monitoring and Control

- Subjective confidence of testers in the product.
- Dates of test milestones.
- Testing costs, including the cost compared to the benefit of finding the next defect or to run the next test.

5.3 Test progress Monitoring and Control

Test Set: Mercury Tours Functionality | Test Type: All | View Report

Date To: 11/1/2005 | Run Scope, Days: 7

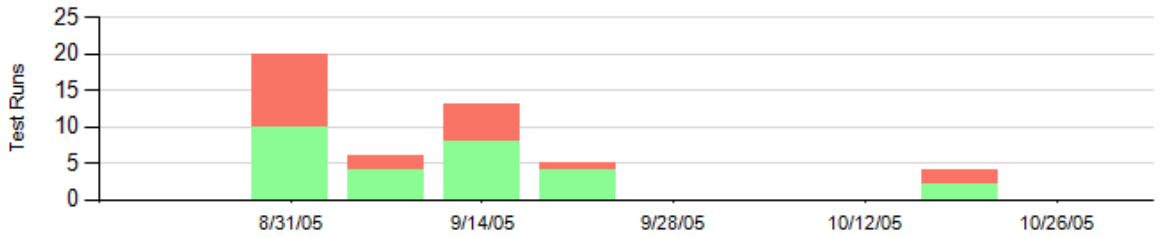
1 of 1 | 100% | Find | Next

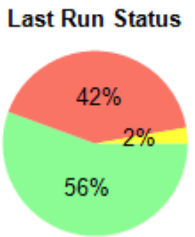
<YOUR COMPANY NAME> HP Quality Center Report

Test Set: Mercury Tours Functionality

Test Run Progress for <YOUR PROJECT NAME>

Test Subject	Total Test Count	Weekly Test Runs between 8/24/2005 and 11/1/2005											Unique Test Run		Last Run		
		Aug 24-30	Aug 31-6	Sep 7-13	Sep 14-20	Sep 21-27	Sep 28-4	Oct 5-11	Oct 12-18	Oct 19-25	Oct 26-1	Total	Total	Covered	Status: Pass	Status: Fail	Fail Rate
Sign-On/Sign-Off	2		1	1								2	2	100 %	2		0 %
Cancel Reservations	2					3						3	2	100 %	2		0 %
Edit Profile	4		2	1	1					1		5	4	100 %	1	3	75 %
View Reservations	1					1						1	1	100 %	1		0 %
Registration	7		7							2		9	7	100 %	4	3	43 %
Flight Finder	10		9		2					1		12	9	90 %	5	4	44 %
Flight Cost	2				5							5	2	100 %	1	1	50 %
Book Flight	7		1	4	4							9	7	100 %	3	4	57 %
Flight Confirmation	1				1	1						2	1	100 %	1		0 %
Total	36	0	20	6	13	5	0	0	0	4	0	48	35	97 %	20	15	43 %





5.3 Test progress Monitoring and Control

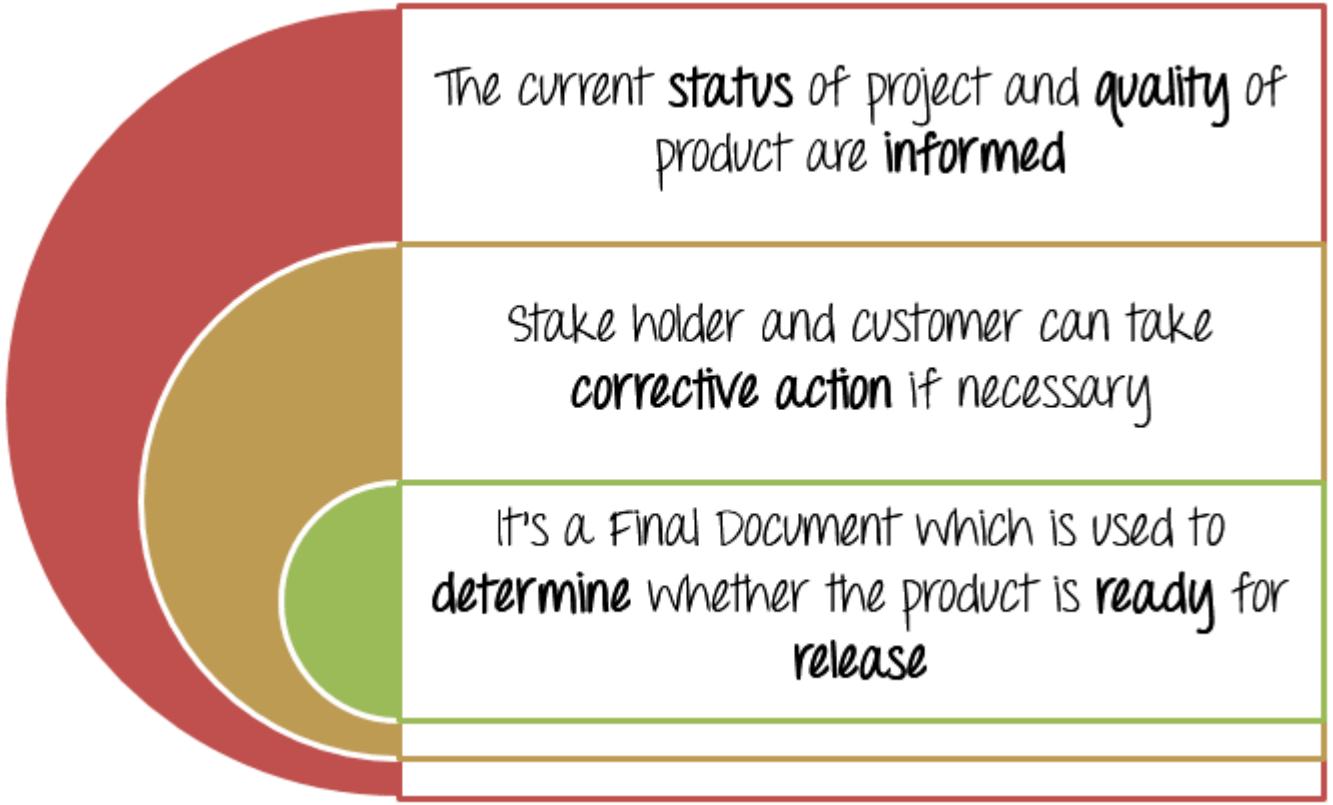
5.3.2 Test Reporting :

Test reporting is concerned with summarizing information about the testing endeavor, including :

- What happened during a period of testing, such as dates when exit criteria were met.
- Analyzed information and metrics to support recommendations and decisions about future actions, such as an assessment of defects remaining, the economic benefit of continued testing, outstading risks, and the level of confidence in the tested software.

5.3 Test progress Monitoring and Control

The Test Report indicates whether the product is ready to be released or not.



5.3 Test progress Monitoring and Control

- The outline of a test summary report is given in ’Standard for Software Test Documentation’ (IEEE Std 829-1998).

- Metric should be collected during and at the end of a test level in order to assess :

1. The adequacy of the test objectives for that test level.
2. The adequacy of the test approaches taken.
3. The effectiveness of the testing with respect to the objectives.

5.3 Test progress Monitoring and Control

5.3.3 Test Control :

Test control describes any **guiding or corrective actions taken** as a result of information and metrics gathered and reported.

Examples of test control actions include :

- **Making decisions** based on information from **test monitoring**.
- **Re-prioritizing tests when an identified risk occurs** (e.g., software delivered late)
- **Changing the test schedule** due to availability or unavailability of a test environment
- Setting an entry criteria requiring fixes to have been re-tested (confirmation tested) by a developer before accepting them into a build.

5.3 Test progress Monitoring and Control

Test Control examples

1. Due to a new defect found by a tester, the order of Test cases should be updated to avoid regression testing.
2. Because the development Team is not yet familiar with the Mocha Testing framework, the activity of Test development will be delaid of 1 week.
3. Due to the high rate of failed Test Cases in System Testing, the development Team should be trained on unit testing.

Knowledge Check

Which of the following is a MAJOR activity of test control ?

A. Scheduling test analysis and design

B. Implementing the test policy or strategy

C. Making decisions based on information from test monitoring

D. Determining the scope and risks

Knowledge Check

Which of the following is a MAJOR activity of test control ?

A. Scheduling test analysis and design

B. Implementing the test policy or strategy

C. Making decisions based on information from test monitoring

D. Determining the scope and risks

Knowledge Check

Place the stages of the Fundamental Test Process in the usual order (by time) :

a) Test closure activities.
b) Analysis and design.
c) Planning and control.
d) Implementation and execution.
e) Evaluating exit criteria and reporting.

A. c, b, d, e, a
B. c, b, e, d, a
C. c, b, d, a, e
D. b, c, d, e, a

Knowledge Check

Place the stages of the Fundamental Test Process in the usual order (by time) :

a) Test closure activities.
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A. c, b, d, e, a
B. c, b, e, d, a
C. c, b, d, a, e
D. b, c, d, e, a

5.4 Configuration Management

The purpose of configuration management is to establish and maintain the integrity of the component or system, the testware, and their relationships to one another through the project and product lifecycle.

To properly support testing, configuration management may involve ensuring the following:

1. All test items are uniquely identified, version controlled, tracked for changes, and related to each other
2. All items of testware are uniquely identified, version controlled, tracked for changes, related to each other and related to versions of the test item(s) so that traceability can be maintained throughout the test process
3. All identified documents and software items are referenced unambiguously in test documentation

Test management plan

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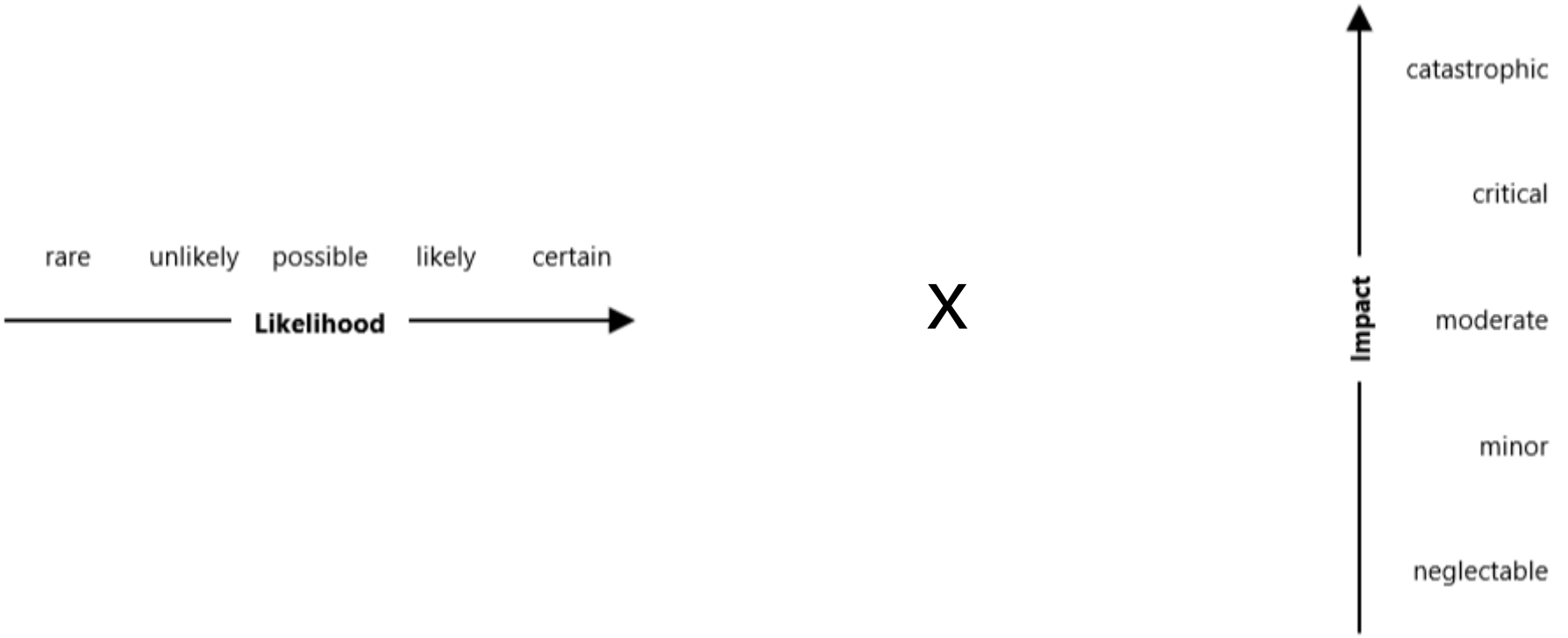
5.5 Risk and Testing

5.6 Defect management

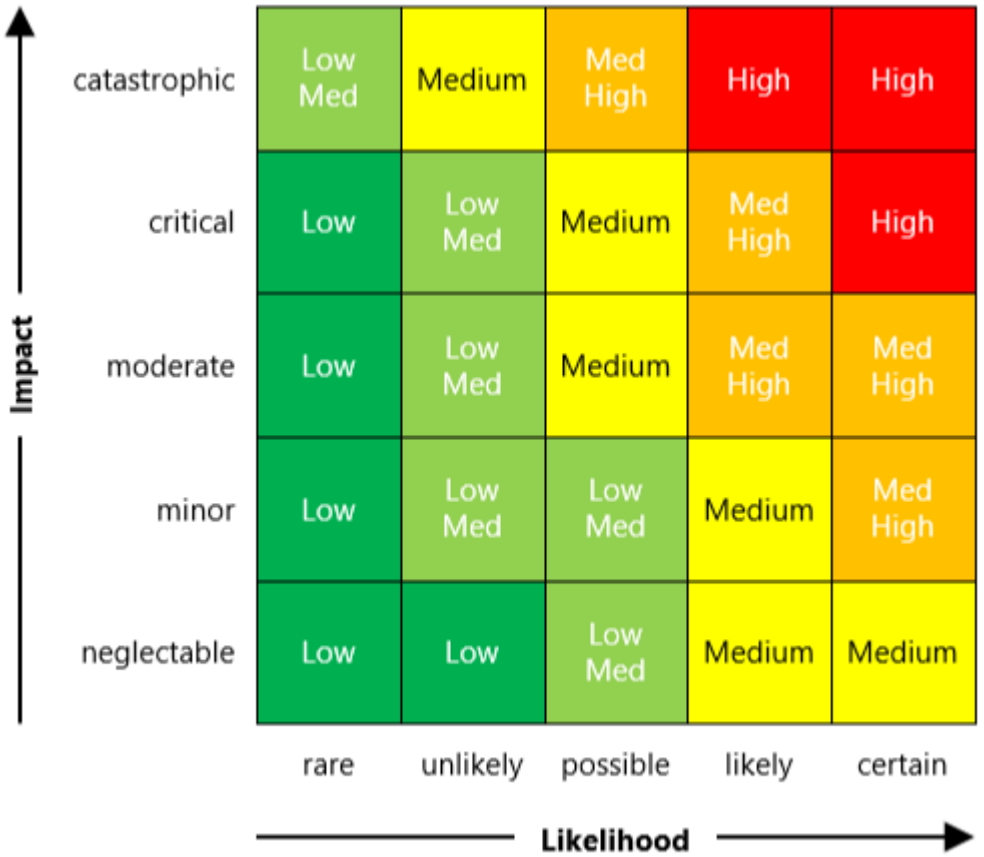
5.5 Risk and testing

The level of risk is determined by the likelihood of the event and the impact

The level of risk = Likelihood of the event (probabilité d'occurence) x the impact



5.5 Risk and testing



5.5 Risk and testing

Example :

Nous voulons collecter des données sur une population d'étudiants pour faire des statistiques sur leurs comportements d'hygiène.

Le « Business Analysis Team » a identifié les fonctionnalités suivantes :

- Création des informations d'identification de l'étudiant.
- Collecte des données sur les habitudes alimentaires.
- Collecte des données sur les habitudes d'hygiène quotidienne.
- Collecte des autres informations.
- Traitement statistiques des données.
- Stockage et publication des résultats.

En se basant sur une analyse des risques nous voulons évaluer les tests nécessaires.

5.5 Risk and testing

Quelques exemples de risques identifiés :

Dépassement de budget du projet.

L'utilisateur ne remplie pas tous les champs indispensables.

Le système ne sera pas facile à utiliser, il sera rejeté par les étudiants.

Erreur au niveau des calculs statistiques.

Lenteur dans le Temps d'accès aux résultats déjà publiés

Lenteur lors de l'upload du formulaire des informations de l'enquête.

Mauvais affichage sur les terminaux mobile : Tablette et autres.

Mal compréhension des choix relatifs aux habitudes d'hygiène

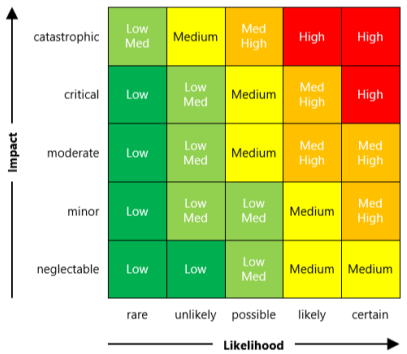
5.5 Risk and testing

Analyse des risques

Risque	Likelihood	Impact
Dépassement de budget du projet.	possible	critical
L'étudiant ne consulte pas souvent le site web de l'ISET.	likely	catastrophic
Le système ne sera pas facile à utiliser, il sera rejeté par les étudiants.	possible	catastrophic
Erreur au niveau des calculs statistiques.	rare	catastrophic
Lenteur dans le Temps d'accès aux résultats sur le web.	rare	moderate
Lenteur lors de l'upload du formulaire des informations de l'enquête (3G)	likely	critical
Mauvais affichage sur les terminaux mobile : Tablette et autres.	likely	critical
Certains étudiants ne comprennent pas bien la langue française	rare	critical

5.5 Risk and testing

Risque	Likelihood	Impact	**Result**
Dépassement de budget du projet.	possible	critical	medium
L'étudiant ne consulte pas souvent le site de l'ISET.	likely	catastrophic	High
Le système ne sera pas facile à utiliser, il sera rejeté par les étudiants.	possible	catastrophic	Med high
Erreur au niveau des calculs statistiques.	rare	catastrophic	Low Med
Lenteur dans le Temps d'accès aux résultats sur le web.	rare	moderate	Low
Lenteur lors de l'utilisation d'une connexion à faible débit	possible	critical	medium
Mauvais affichage sur les terminaux mobile de type iPhone.	rare	critical	Low
Certains étudiants ne comprennent pas bien la langue française	rare	critical	Low

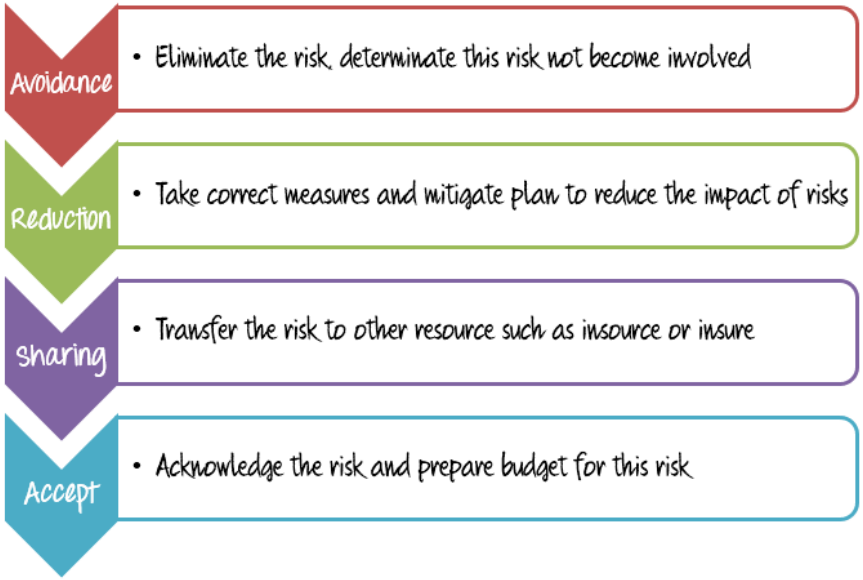


5.5 Risk and testing

Risque	**Result**	Priority
Dépassement de budget du projet.	medium	3
L'étudiant ne consulte pas souvent le site de l'ISET.	High	1
Le système ne sera pas facile à utiliser, il sera rejeté par les étudiants.	Med high	2
Erreur au niveau des calculs statistiques.	Low Med	4
Lenteur dans le Temps d'accès aux résultats sur le web.	Low	5
Lenteur lors de l'utilisation d'une connexion à faible débit	medium	3
Mauvais affichage sur les terminaux mobile de type iPhone.	Low	5
Certains étudiants ne comprennent pas bien la langue française	Low	5

5.5 Risk and testing

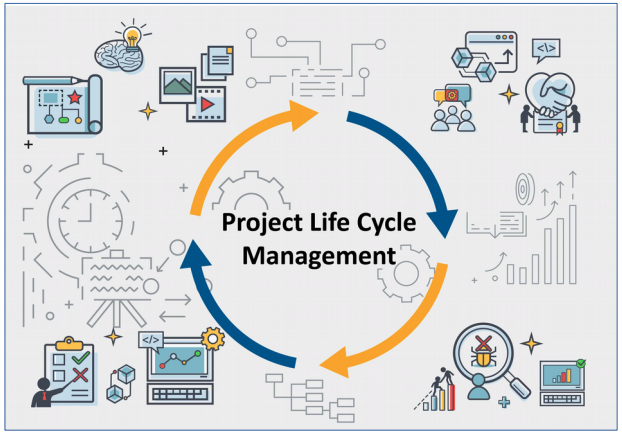
Risque	**Result**	Priority	Response
Dépassement de budget du projet.	medium	3	
L'étudiant ne consulte pas souvent le site de l'ISET.	High	1	
Le système ne sera pas facile à utiliser, il sera rejeté par les étudiants.	Med high	2	
Erreur au niveau des calculs statistiques.	Low Med	4	
Lenteur dans le Temps d'accès aux résultats sur le web.	Low	5	
Lenteur lors de l'utilisation d'une connexion à faible débit	Med High	2	
Mauvais affichage sur les terminaux mobile de type iPhone.	Med High	2	
Certains étudiants ne comprennent pas bien la langue française	Low	5	Accept



5.5.1 Project and product risks

Product risk involves the possibility that a work product (e.g., a specification, component, system, or test) **may fail to satisfy the legitimate needs** of its users and/or stakeholders.

Project risk involves situations that, should they occur, may have a **negative effect on a project's** ability to achieve its objectives.



Project risks examples

Project issues	Organizational issues	Technical issues
Delays may occur in delivery, task completion, or satisfaction of exit criteria or definition of done	Skills, training, and staff may not be sufficient	Bad choice of tools.
Inaccurate estimates, reallocation of funds	Personnel issues may cause conflict and problems	The requirements may not be met, given existing constraints
	Users, business staff, or subject matter experts may not be available due to conflicting business priorities	Poor defect management and similar problems may result in accumulated defects and other technical debt

Product risks examples

- Software might not perform its intended functions according to user, customer, and/or stakeholder needs
- A system architecture may not adequately support some non-functional requirement(s)
- A particular computation may be performed incorrectly in some circumstances

5.5.2 Risk-based Testing and Product Quality

- Risk is used to focus the effort required during testing. It is used to decide where and when to start testing and to identify areas that need more attention.
- Testing is used to reduce the probability of an adverse event occurring, or to reduce the impact of an adverse event

5.5.2 Risk-based Testing and Product Quality

In a risk-based approach, the **results of product risk analysis** are used to

- Determine the **test techniques to be employed**
- Determine the particular **levels and types of testing** to be performed
- **Prioritize testing** in an attempt to find the critical defects as early as possible
- Determine whether any activities in addition to testing could be employed to reduce risk

Test management plan

5.1 Test Organization

5.2 Test Planning and Estimation

5.3 Test Monitoring and Control

~~5.4 Configuration Management~~

5.5 Risk and Testing

5.6 Defect management

5.6 Defect Management

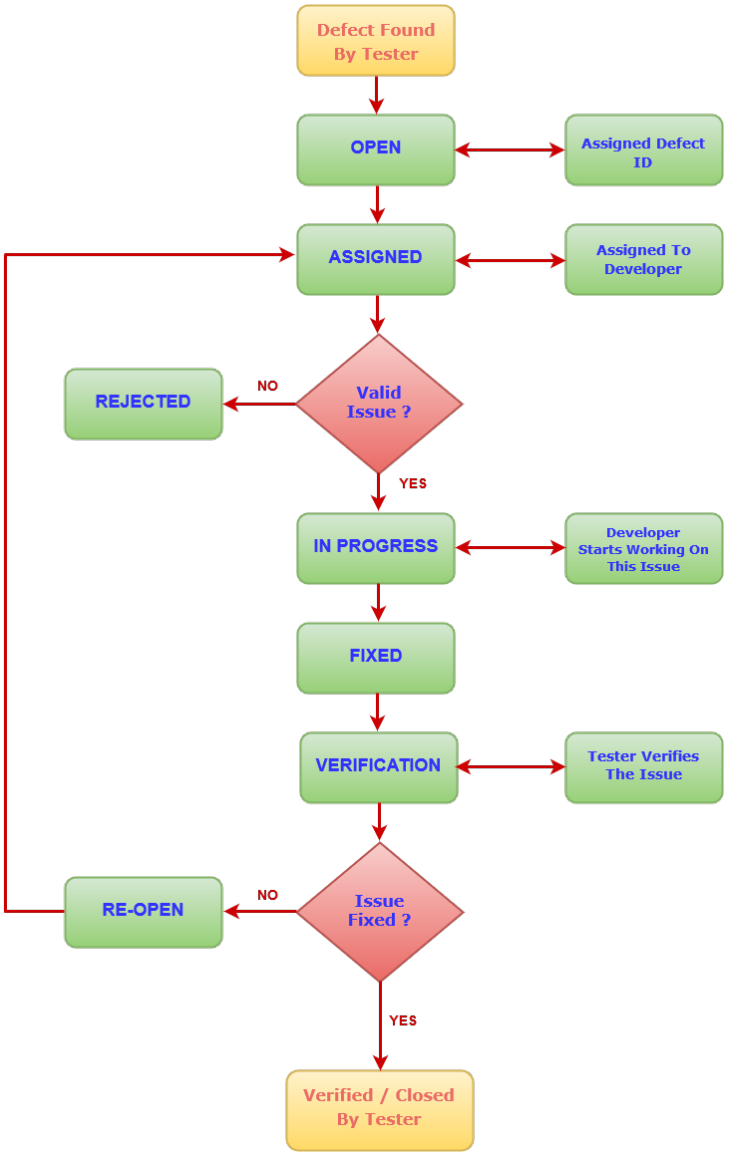
One of the objectives of testing is to find defects, defects found during testing should be logged

- Defects may be reported during coding, static analysis, reviews, or during dynamic testing, or use of a software product.

- Any defects identified should be investigated and should be tracked from discovery and classification to their resolution.

5.6 Defect Management

Defect life cycle

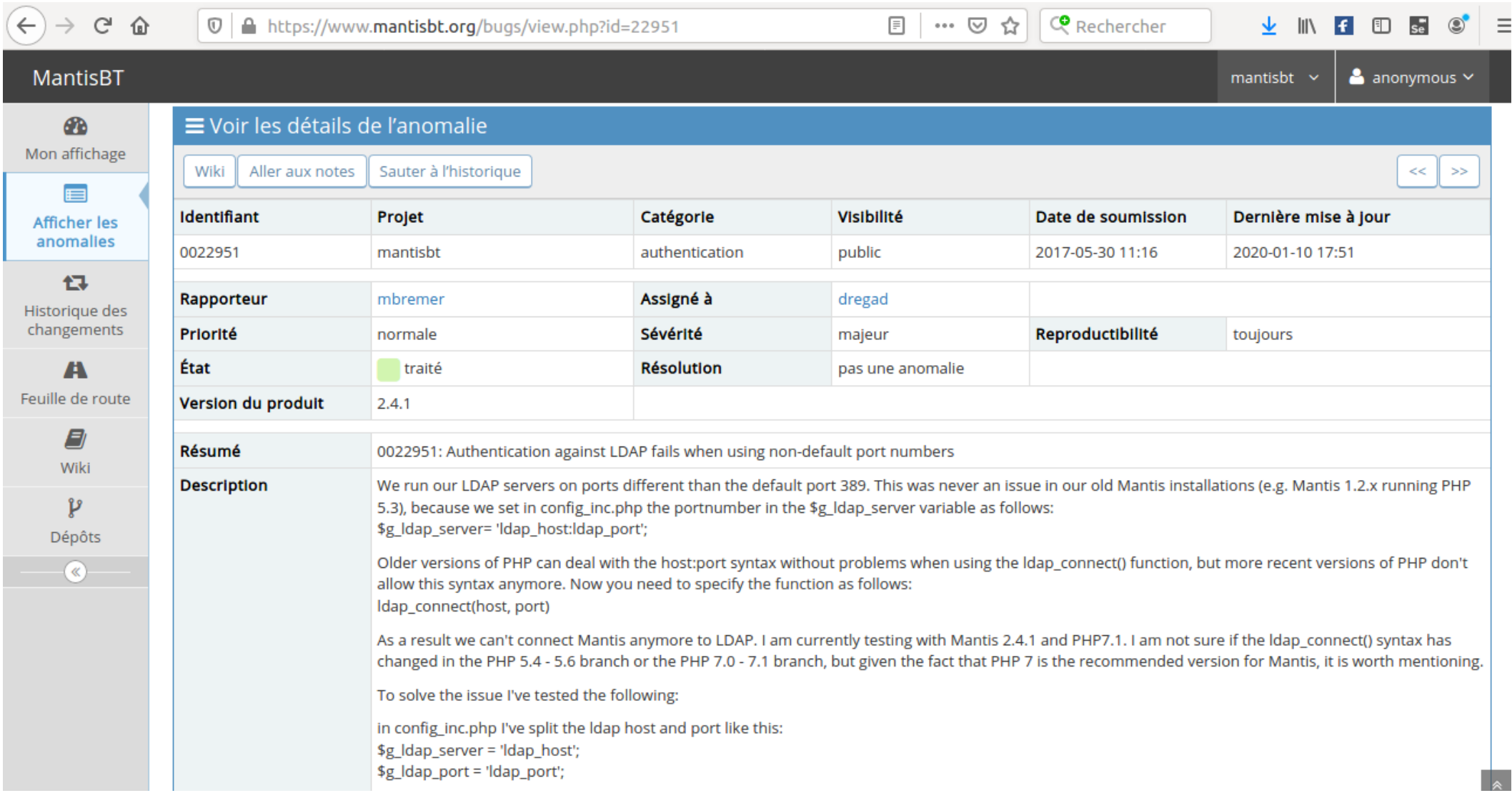


Typical defect report

A defect report filed during dynamic testing typically includes:

- An identifier
- A title and a short summary of the defect being reported
- Date of the defect report, issuing organization, and author
- Identification of the test item (configuration item being tested) and environment
- The development lifecycle phase(s) in which the defect was observed
- A description of the defect to enable reproduction and resolution, including logs, database, screenshots, or recordings (if found during test execution)
- Expected and actual results
- Scope or degree of impact (severity) of the defect on the interests of stakeholder(s)
- Urgency/priority to fix

Defect report Example : (mantis)



Conclusion

- The test management activity is oriented not only to tester but also to test leader.
- The test management process involves several tasks such as Planning and monitoring the on-going tests, verifying entry and exit criteria etc.
- The Risk based testing is an approach that adopts risk analysis to identify the testing effort and priority.
- Identified defects should be tracked according to a well defined process, and ideally the process should be automated.