

COMP 5222
Software Testing and Quality Assurance
Group Project
2012/2013, Term 1

Due date: Dec 14

Project selection and group formation date: Nov 23
(4 members per group)

Goal: Gain insight into an area of specialization. Try to identify key issues or problems; compare 2 or more approaches, models, and techniques, and/or suggest new solutions. Develop skills in a team environment and improve communication skills.

All topics are First come, First serve

1. Cloud computing is gaining popularity this year. Testing as a service (TAAS) is a new form of cloud computing service offered. Do a survey of TAAS available on the market, comparing the service offered, types of testing supported, pros and cons, etc and finally recommend one or more service providers with strong justification.
2. Survey the testing tools for e-commerce applications. Compare these tools and identify the tools you will recommend to your organization. (Hint: read the paper 'Evaluation of case tools methods and processes')
3. Survey the Open Source unit testing tools. Describe, evaluate and compare 8 of them. (Hint: you may survey unit testing tools for J2EE, J2SE, or other platforms. Read the paper 'Evaluation of case tools methods and processes')
4. Survey the Open Source system testing tools. Describe, evaluate and compare 8 of them. (Hint: read the paper 'Evaluation of case tools methods and processes')
5. Based on the Testing Capability Maturity Model, do a survey on your classmate to determine the maturity of the testing process of HK or China software organizations.
6. You have been hired as the test manager of a start-up software company. Your boss would like to have a *state-of-the-art* testing system. Write a testing manual (including test strategy, test techniques, detailed testing procedures, forms, documents, guidelines, etc) for your company.
7. You have been hired as the test manager to set up a testing center. Your company employs 200 software developers and works on about 25 projects each year. Develop a plan of action to set up the testing center, including the required budget, hardware and software to be acquired, staffing requirement (with specific knowledge and skill set), testing policy, procedures, and handbook to be developed, etc. Clearly state any assumption made.
8. Propose a testing strategy for agile development methodology, including the test process, techniques, and checklists. Evaluate its strengths and weaknesses.
9. Propose a testing strategy for Internet applications, including the test process, techniques, and checklists. Evaluate its strengths and weaknesses.
10. Propose a testing strategy for mobile applications, including the test process, techniques, and checklists. Evaluate its strengths and weaknesses.

11. Propose a testing strategy for Graphical User Interface, including the test process, techniques, and checklists. Evaluate its strengths and weaknesses.
12. Open source software has become a popular alternative to many organizations. However, it suffers from usability and security issues. Propose a testing strategy for systems developed partly with some open source software components/subsystems, including the test process, techniques, and checklists. Evaluate its strengths and weaknesses.
13. Develop a testing manual for performance testing (including test strategy, test techniques, detailed testing procedures, forms, documents, guidelines, etc). Your testing manual will be used by organizations which are new to performance testing and are looking for guidance on how to do performance testing.
14. Develop a testing manual for usability testing (including test strategy, test techniques, detailed testing procedures, forms, documents, guidelines, etc). Your testing manual will be used by organizations which are new to usability testing and are looking for guidance on how to do usability testing.
15. Develop a testing manual for embedded system (including test strategy, test techniques, detailed testing procedures, forms, documents, guidelines, etc). Your testing manual will be used by organizations which are new to embedded system testing and are looking for guidance on how to do embedded system testing.
16. Develop a testing manual for a SME software development company (including test strategy, test techniques, detailed testing procedures, forms, documents, guidelines, etc). Your testing manual will be used by SME which are new to testing and are looking for guidance on how to do testing.
17. Write a proposal to implement test automation for your company (or an internet application company, or a SME IT company). Be as complete as possible, including the specific tools to be acquired, the cost and benefit analysis, the training and implementation plan.
18. A topic of your choice. Must obtain approval by Nov 23.

Research students should select one of the following topics:

- R1. Develop a new testing technique to test one of the following types of software and experimentally demonstrate that it works or does not work:
 - Web application
 - Mobile application
 - Embedded software
 - MIS
- R2. Survey the test selection techniques for regression testing. Identify those techniques which can be applied to the software industry, and propose a practical regression testing strategy (which includes test techniques, test process, input and output of each process, testing guidelines, and supporting forms and documents).

Report

Size: 25-35 pages, single spacing.

All group members are expected to contribute equally to the project. Include a clear statement on each member's contribution to the project. Your group project will be assessed and allocated a common mark. However, depending on your contribution to the group project your marks will accordingly be adjusted towards your final assessment for the subject.

You should find and integrate material from at least 8 references to produce your report. The total number of references required depends on the quality and quantity of information included in each reference. Ideas from a paper must be used and cited within the text of your report to be considered a reference!

Assessment

Report	70%	
Presentation	30%	(at least 2 members do the presentation) Two other project groups will assess your presentation.

You are required to attend all project presentations, which provide you an opportunity to learn new material from the experience and work of your classmates.

Reference Citations Guide

Use the **author-date format** to cite references in text. For example: as Smith (1990) points out, a recent study (Smith, 1990) shows. . . .

Every source cited in your text, and only those sources cited in your text should be referenced in the reference list.

Left Page (References):

Short title header & page number. 10

References

Allport, G. W. (1979). *The nature of prejudice*. Cambridge, MA: Addison-Wesley. (Original work published 1954)

Baskur, R. (1997). Critical issues in telemedicine. *Telemedicine Journal*, 3, 113-126.

Friedman, H. S. (Ed.). (1990). *Personality and disease*. New York: Wiley.

Griffiths, A. J. F. (1992). Fungal senescence. *Annual Review of Genetics*, 26, 351-372.

Stephan, W. G. (1985). Intergroup relations. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., Vol. 2, pp. 599-558). New York: Random House.

Undisclosed settlement reached out of court in Michigan Biodyne civil suit. (1992, March). *Psychiatric Times*, p 16.

Wilson, E. O. (1998, March). Back from chaos. *Atlantic Monthly*, 281, 41-62.

Right Page (Table):

Short title header & page number. 8

Place tables and figures in your text close to where they are first discussed.

Table 1
Homicides by Race of the Victim: United States, 1993

Race	Population ^a	Homicides	Rate ^b
Black ^c	29,986	12,114	40.5*
White	199,686	12,153	6.1
Other ^d	19,038	635	3.3**
Total	248,710	24,932	10.0

Note: Data developed from the Statistical Abstract of the United States--1993. ^aPopulation in 1000s. ^bRate per 100,000 in the population. ^cThe rate for Black males was 69.2, for White males it was 9.0. ^dAbout one-half the "Other" category was composed of Asian Americans and Native Americans. *p<0.001, two-tailed test. **p<0.05, two-tailed test.

Continue your text after the table or figure. Note, large tables are rarely studied in detail by most readers. Think small, concise, focused.

See <http://library.osu.edu/sites/guides/apagd.php> for more details on the APA (American Psychological Association) editorial style.

You are required to show that you have read and absorbed the relevant literature. You should critically analyse the issues related to your topic. Learning is maximized when you identify relevant theory and apply this in a practical situation.

Report checklist

Include the following page containing a checklist for you to **complete, sign, and attach to your report**. This is designed to help ensure you have not missed any important details and that your work is as complete and error-free as possible.

Also, clearly state the contribution of each member.

Report Checklist

- ___ The report has been checked for spelling/typos. This is more than spell checking. After you have run Spell Check, you need to read carefully for spelling/typos that Spell check don't detect. For example, does your sentence say, "Samples will be purchased form ABC" instead of "Samples will be purchased from ABC"?
- ___ The report has been checked for incomplete sentences (sentence fragments).
- ___ Every group member has read the entire report.
- ___ The prescribed format has been used, including proper citation of references.
- ___ All sources cited in the report are included in the Reference section.
- ___ All sources listed in the Reference section are cited in the body of the report.

Contribution of each member:

Section 1: <name of member>
Section 2: <name of member>
Section 3: <name of member>
Section 4: <name of member>
Section 5: <name of member>
Etc.

Group members' signatures:

Presentation Guide

LANGUAGE

- Take the time to write your presentation and check the grammar
- Speak slowly
- Use short sentences
- Use small words
- Avoid phrases that are difficult to pronounce

PRESENTATION STRUCTURE

An effective oral presentation should be structured:

- 1) Opening
 - Arouse your audience's interest
 - Demonstrate why the topic is important (i.e. why the audience should listen to you)
- 2) Outline of Main Points
 - Provide one slide at the beginning of your presentation in the form of a table of contents/agenda to show the topics you will be covering.
- 3) Detail of Main Points
 - Follow the order of your outline
 - Limit the number of points you make, since listeners cannot process as much information as readers can
 - Be clear when you are switching to a new point, since listeners cannot follow as easily as readers can
- 4) Conclusion
 - Give a summary of your main points
- 5) Question Period
 - Prepare yourself by thinking of possible questions and rehearsing answers ahead of time.
 - Paraphrase or repeat all questions to be sure that you understand what is being asked and that the audience has heard the question.
 - Keep everyone involved by speaking to the entire audience instead of just the person who asked the question.
 - Answer the questions clearly and concisely.

VISUAL AIDS

Visual aids add variety and interest to your presentation, and help your audience to remember your presentation longer than they would with words alone.

General Information for Slides

- Use 1-2 slides per minute of your presentation, and 4-5 points per slide.
- Use effective titles. Someone should be able to look at the slide and understand its meaning without any explanation from you.
- Be consistent with your headings and subheadings. Use the same font, size, and color throughout. Also use the same wording in your table of contents slide as in your detailed slides. This makes your presentation easier to follow.

- Use graphs rather than just figures and words. This makes data easier to comprehend and retain.
- Proof your visual aids for spelling mistakes!
- Avoid wordiness. Use key words and phrases only.

Font

- Use large font. The minimum font size you should use is 18-point type.
- Except for very short titles, capitalize only the first letter of a sentence or phrase.
- Choose a readable font.

Colour and Background

- Use colour to serve a function, not merely to decorate. For example, colour can be used to reinforce the logic of your structure (e.g., title in one colour and text in a different colour) or for emphasis.
- The colour of titles and text should contrast sharply with the background colour. Otherwise, your audience will not be able to read your slides.

Graphs and Charts

- Avoid overly complex graphs and charts that will have your audience trying to understand the slides rather than listening to you.
- Do not use unnecessary shading, borders, 3D effects or legends.

Preparation

The effort required to make quality slides will be wasted if they are not used properly. Take the time to practice your presentation with the visual aids so that you use them effectively.

- Learn to use the hardware.
- Learn to use the software.
- Show only the chart/slide that you are discussing. Otherwise, your audience will become confused.
- Practice your presentation so that you feel comfortable talking and changing slides.

GENERAL POINTS

Practice your presentation so that you feel comfortable talking to your audience and looking at your audience, not at a piece of paper. Notes can help you remember points and to keep yourself organized. But, you should not be reading 100% of the time.

Out of respect for those who are listening to your presentation, dress appropriately. Business dress is expected (suit, shirt and tie, or dress shirt/sweater are acceptable). T-shirts, sandals and shorts are not acceptable.

ADDITIONAL INFORMATION

Munter, Mary. *Guide to Managerial Communication. Effective Business Writing and Speaking*. 4th Edition. New Jersey: Prentice Hall, 1997.

Presentation Reminder:

1. Present only new materials, key points and results of the project. There is NO TIME for extensive review of what we have covered in class.
2. The presentation should be organized to be compact, information-rich, coherent, and focused on the most relevant information.
3. Make the presentation interesting. 'A picture worths a thousand words.'
4. Allow at least 3 minutes for Questions and Answers.
5. Must finish the presentation on time.
6. Avoid the following common mistakes:
 - *The first presenter used up too much time; the other members did not have time to finish the presentation.*
 - *No focus.*
 - *No "take-away" points. (What are the key points your audience should learn from your presentation?)*
 - *Not interesting. Boring.*
 - *Too many slides (at most one slide per minute)*
 - *Talk about concept/ material already discussed in class or well-known knowledge.*

Presentation Marking Criteria

Presentation **Group:** _____

Reviewed by: _____

Start time: _____

End Time: _____

	<i>Excellent</i>	<i>Good</i>	<i>Adequate</i>	<i>Fair</i>	<i>Comment</i>
Organization of Presentation.....					
Design of Slides (e.g. font size).....					
Clarity of Speaking					
Pace of Presentation, Interesting, Entertaining					
Use of Pictures and Examples.....					
Response to Questions.....					
Enthusiasm, Rapport with Audience (e.g. eye contact)...					
Provide useful and relevant information					
Completing on time.....	Yes			No	
Overall					