**Risk Assessment for SMUT**

Alex Skachek, Ben Sabean, Jack Pew, Mukul Taxak

September 25, 2013

# 1 Introduction

This document is meant to analyze some of the risks associated with the development of a Saint Mary’s University toolbar (SMUT) and attempts to explain how to prevent or minimize the damage from any risk that might occur. The risks have been put into loose categories depending on what they will impact the most if they occur.

# 2 Team Risks

**2.1**

**Risk:** The group is split up.

**Description:** Group disbands due to members dropping the course.

**Risk Level:** Low

**Likelihood:** Low

**Impacts:** Workload, Time management, Deadlines

**Reaction/Prevention:** Remaining members will be integrated into other groups, bringing with them knowledge acquired prior to the split and files of the work done so far, in order to contribute to the development of other team’s toolbar, without being too much of a burden.

**2.2**

**Risk:** A member joins our group.

**Description:** A member joins due to his/her group being split up.

**Risk Level:** Low

**Likelihood:** Low

**Impacts:** Time management

**Reaction/Prevention:** In case a new member joins, we will need to bring him/her up to speed on the work we have done so far. Our documentation will be key in this scenario, both in reminding ourselves what we have done and as review material for the new member.

**2.3**

**Risk:** A member leaves the group (injury or otherwise).

**Description:** A person with key information about the project leaves or is not present. The remaining group members may not be able to acquire the now missing knowledge or learning the missing information slows down production of the project.

**Risk Level:** High

**Likelihood:** Moderate

**Impacts:** Workload, Time management, Deadlines

**Reaction/Prevention:** All aspects of the project should be documented and all coding should follow one coding style to maximize readability. Any key parts of the project should be known by at least two group members; however ideally all parts of the project should be known by multiple members.

**2.4**

**Risk:** Not all members of the group put forth equal effort.

**Description:** One member of the group contributes significantly more than other members or one member of the group contributes significantly less than other members.

**Risk Level:** Low

**Likelihood:** High

**Impacts:** Deadlines, Workload

**Reaction/Prevention:** To mitigate the impact of this reality, we can plan small deadlines well in advance of project deadlines. This creates a “cushion” for the team to use to react to changing workloads.

**2.5**

**Risk:** Poor communication between group members.

**Risk Level:** Moderate

**Likelihood:** Moderate

**Impacts:** Deadlines, Faulty software, Performance issues

**Reaction/Prevention:** We keep all the work done by different people and exchange it so that everyone knows what's going on with the progress of the project. In case someone leaves the group for any reason, the rest of the members can start right from there without wasting any time. It will be easier to understand as well as all the members will now have each other's work.

**2.6**

**Risk:** Deadline extension

**Description:** Slippage of deadline for this Risk Assessment leads to slippage of deadlines for future milestones.

**Risk level:** Moderate

**Likelihood:** Moderate

**Impacts:** Deadlines, Workload

**Reaction/Prevention:** Try to avoid extensions, if unavoidable, try to keep it as small as possible.

# 3 Project Risks

**3.1**

**Risk:** Data loss.

**Description:** Loss of all project data due to system failure.

**Risk** **Level:** High

**Likelihood:** Low

**Impacts:** Deadline, Lose entire project files

**Reaction/Prevention:** Files will be stored on a GitHub repository with local clones strewn about team member workstations.

**3.2**

**Risk:** Initial project requirements change.

**Description:** Parts of the group's work, documentation or acquired knowledge become useless or there is loss of time to rework or restart the project.

**Risk Level:** Moderate

**Likelihood:** Moderate

**Impacts:** Deadline, Restructuring project, Redesign

**Reaction/Prevention:** By keeping versions of each stable build of the project we may be able to find a version closer to the new requirements, or that can easily be modified to implement the new requirements. Also by ensuring that every group member understands the project and its structure we can efficiently modify the project to implement the new requirements. In the case of a severe change in the requirements loss of work may not be avoided, but the skills we have developed in the project domain may still be applicable.

**3.3**

**Risk:** Cannot complete the project on time.

**Description:** The toolbar does not function correctly by November 25th.

**Risk Level:** High

**Likelihood:** Moderate

**Impact:** Bad evaluation

**Reaction/Prevention:** We will aim for a simple deliverable and extend functionality only after requirements that we deem minimal have been met. Features will be given priorities in the design and if they must be cut, these priorities will serve to guide those decisions.

**3.4**

**Risk:** Unsatisfactory outcome.

**Description:** A toolbar is produced, but it does not conform to the client’s stated or unstated requirements.

**Risk Level:** Moderate

**Likelihood:** Moderate

**Impacts:** Bad evaluation

**Reaction/Prevention:** We will attempt to thoroughly consider the design decisions for the toolbar.

**3.5**

**Risk:** Project scope too large.

**Description:** The amount of time needed to complete a toolbar is more than the timeframe we actually have.

**Risk level:** Moderate

**Likelihood:** Moderate.

**Impacts:** Toolbar functionality.

**Reaction/Prevention:** Try to get done as much as possible. Keep design simple. Compartmentalize features, develop/test one feature before moving to the next one.

# 4 Technical Risks

**4.1**

**Risk:** Browser crash.

**Description:** Browser does not start, as a result of our toolbar installation.

**Risk Level:** High

**Likelihood:** High

**Impacts:** Loss of browser data, time to debug.

**Reaction/Prevention:**

* Develop/Test using a different browser profile, to avoid loss of browser data (passwords, cookies, bookmarks).
* Uninstall Toolbar by moving pointer file to a different location (dynamic development), or by removing it through add-on manager -in Firefox's Safe-Mode (non-dynamic development).
* Debug JavaScript with Firefox's Error Console or Console (Firefox Add-On).
* Troubleshoot XUL/XML using DOM Inspector (Firefox Add-On).

**4.2**

**Risk:** Memory leaks.

**Description:** Browser performance is decreased, as a result of our toolbar installation.

**Risk Level:** Moderate

**Likelihood:** Moderate

**Impacts:** Browser performance.

**Reaction/Prevention:** Debug JavaScript using available Leak Tools (i.e. Trace-malloc, Purify).

“Performance: Leak Tools”. *MazillaWiki*. Web. 25 Sept. 2013. <https://wiki.mozilla.org/Performance%3aLeak_Tools>

**4.3**

**Risk:** Toolbar stores or transmits personal data.

**Description:** The toolbar is not secure and is susceptible to attacks or the use of personal information goes against Saint Mary’s University regulations and policies.

**Risk Level:** High

**Likelihood:** High

**Impacts:** Users avoid product, removal from distribution list, doesn’t comply with SMU regulations.

**Reaction/Prevention:** One method of dealing with all associated risks is to simply not deal with any personal information. Instead have the Saint Mary’s University website deal with all personal information. If information must be processed by the SMUT toolbar then follow best practices for Mozilla Firefox (<https://developer.mozilla.org/en-US/docs/Security_best_practices_in_extensions> ) and Microsoft Internet Explorer (<http://msdn.microsoft.com/en-us/library/aa753617(VS.85).aspx#wsbe_Code_Safety> ). For Firefox this includes code wrapping and use of the login manager, for Internet Explorer this includes preventing buffer overruns and checking validity of function parameters. Also all software must comply with Saint Mary’s University regulations (<http://www.smu.ca/webfiles/51003SocialMediaPersonalPrivacy.pdf> ).

**4.4**

**Risk:** We are unable to develop the necessary technical skills to implement this project within the allotted time.

**Risk Level:** Moderate

**Likelihood:** Moderate

**Impacts:** Deadlines, bugs in code, poor performance, browser crashes.

**Reaction/Prevention**: We can attempt simple prototypes early in the development cycle in order to better understand what we need to learn. In the case of Mozilla Firefox, we can follow one of many simple online tutorials in order to get started.

**4.5**

**Risk:** Our work is unmaintainable, or relies upon browser features which some users may disable.

**Risk Level:** Moderate

**Likelihood:** Moderate

**Impacts:** Debugging, future extensions, crash if certain features disabled

**Reaction/Prevention:** We can restrict ourselves to simple web technologies, and attempt to learn how to better use simple technologies.

**4.6**

**Risk:** SMU updates their website (<http://www.smu.ca/> ).

**Description:** Saint Mary's University redesigns their webpage, adding/removing features. As a result, some toolbar features may not work properly.

**Risk Level:** High

**Likelihood:** Moderate

**Impacts:** Redesign toolbar, code revision, some features may not work, deadlines.

**Reaction/Prevention:** In case the website is updated we can use a structure with common keywords as a basic structure of our toolbar. Some of the tabs have to be there such as banner, current students and so. Proper comments should be used so that upgrading the toolbar would be easier that way.

**4.7**

**Risk:** Delivery

**Description:** Toolbar failure during presentation because it was developed outside the university environment.

**Risk Level:** High

**Likelihood:** Low

**Impacts:** Grade, need to provide additional information providing that the toolbar actually works.

**Reactions/Preventions:** Test the toolbar on SMU PC’s before presentation.

# 5 Tool Risks

**5.1**

**Risk:** Toolbar Creator (Creator Approach for IE)

**Description:** Use of a Toolbar Creator tool in order to create our toolbar (reliance on a tool not supported by the team).

**Risk Level:** High

**Likelihood:** High

**Impacts:** Upgrading, new features, maintaining

**Reaction/Prevention:** In an event that we need to upgrade our toolbar, we rely on the creator to be kept up to date. In case the support for the creator is dropped a new tool must be found.

**5.2**

**Risk:** The plugin framework and/or API of Internet Explorer or Mozilla Firefox changes in a future release, requiring a complete redesign, reimplementation or redistribution of our work (including libraries).

**Risk level:** Low (especially if we restrict ourselves to basic web technologies)

**Likelihood:** Low

**Impacts:** redesign, reimplementation, redistribution, deadlines

**Reaction/Prevention:** Keeping the design and codebase clean and well-documented should make reacting to such an event easy for any single team member. Additional documentation should also make it easy for people outside of the design and development team to create a fix, but that may be outside of our budgeted time.

**5.3**

**Risk:** Inability to port code.

**Description:** We are unable to port a Mozilla Firefox design to Internet Explorer

**Risk level:** Moderate

**Likelihood:** Moderate

**Impacts:** Deadlines, workload, new code to support new platform, new bugs as a result of reimplementation.

**Reaction/Prevention:** We can produce a basic prototype in Internet Explorer early in the project development cycle so that we may better understand the issues in developing a toolbar for Internet Explorer.