User Experience Research Report:

Heuristic Evaluation

Created by: Emmanouil Koutantos

Executive summary

This report will document my Heuristics Evaluation of Coursera's forum interface. Heuristics evaluation was designed by Jakob Nielsen in 1994 and offers a cheap, fast and easy-to-use usability engineering method. I, as an evaluator, performed an individual analysis of each of the ten heuristics and tracked the adherence and violations of each. These heuristics cover topics such as feedback, visibility, user control, user efficiency, help, error handling, error prevention and use of metaphors that match the real world. Each finding is given a severity rating from 1 (minor usability problem) to 4 (usability catastrophe) and assigned a recommendation.

Introduction

Coursera is a massive open online course (MOOC) provider that offers massive open online courses (MOOC), specializations, degrees, professional and master-track courses.

Through heuristics evaluation, we hope to provide insights on how to improve the usability of Coursera's forums and in doing so, improve the learning experience and communication for students. In our study, we hope to answer the following questions:

- What heuristics are being violated? How are they violated and with what severity?
- What recommendations can we give for each violation?

Heuristics evaluations are a cheap, fast and easy-to-use method that can identify usability issues in a user interface. We hope to identify some critical issues and provide some useful recommendations.

Methods

Scope of the Evaluation

I determined that the scope of the evaluation would include both threads as well as replies of the forum section of the Coursera site. I further chose to evaluate both the User Interface screens (for both threads and replies) as well as the output, as showed in the forum.

Heuristics Used

For this evaluation, we used the heuristics developed by Jakob Nielsen (1994) in the chapter "Heuristic Evaluation" in Usability Inspection Methods. Additional titles were added to the heuristics for clarification from "6 Tips for a Great Flex UX: Part 5" (Neil, n.d.):

1. FEEDBACK: Visibility of system status
2. METAPHOR: Match between system and the real world
3. NAVIGATION: User control and freedom
4. CONSISTENCY: Consistency and standards
5. PREVENTION: Error prevention
6. MEMORY: Recognition rather than recall
7. EFFICIENCY: Flexibility and efficiency of use
8. DESIGN: Aesthetic and minimalist design
9. RECOVERY: Error Recovery
10. HELP: Help and documentation

Individual Heuristic Evaluations

To begin the evaluation, I conducted an individual heuristic evaluation of the Coursera forum site. This involved taking multiple passes through the forum to determine where there were issues. The issues were then categorized by the heuristic, from the list above, that was violated and the severity of the violation.

Severity was judged based on a 4-point rating scale taken from Nielsen's "Heuristic Evaluation" chapter, Table 2.3 (1994):

1. Cosmetic problem only – need not be fixed unless extra time is available on project
2. Minor usability problem – fixing this should be given low priority
3. Major usability problem – important to fix, so should be given high priority
4. Usability catastrophe – imperative to fix this before product can be released

Findings and Recommendations

Key Findings

Finding 1. Hitting escape on a code block inside a thread breaks the universal code block functionality.

Severity: 4/4

System Location: Edit "Thread" screen, Edit "Reply" screen

Heuristics violated: #1 - Visibility of System Status
#3 - User Control and Freedom
#5 - Error Prevention
#9 - Error Recovery

While creating a code block on the thread screen (either new one or editing one), if you hit escape, you exit the whole thread window, back to forum page. After that, if you edit either the thread, or a post of yours and try to write something in a code block, no input is accepted and you get no output and no indication of what is going on, so essentially, the code block is broken, has total loss of functionality and the users can't finish their task. Fortunately, functions other than the code block are unaffected.

Recommendation: Needs immediate attention from web engineers to assess the situation and fix the bug. It is directly linked to the 2nd finding, so a combined solution is furthered explained in the recommendation, below, of the 2nd finding.
Until such fix is provided, there should be a temporary message advising users to reload their page, which restores the functionality.

Finding 2. Hitting escape on a code block inside a thread, exits the whole thread instead of just the code block.

Severity: 3/4

System Location: "New Thread" screen, Edit "Thread" screen

Heuristics violated: #1 - Visibility of System Status
#3 - User Control and Freedom
#5 - Error Prevention
#9 - Error Recovery

While creating a code block, it displays on the bottom the message: "Press ESC to exit the code block at any time". Once you hit the “ESCAPE” button, you exit the whole thread window, back to the forum page, with no indication of what has happened. In fact, first time I encountered it, being confused about what happened, I reloaded the page and all my input was lost. By sheer luck, next time I discovered that pressing "New Thread" (or edit) button keeps your input intact in a draft.
Fortunately, it works as intended on reply posts, just exiting the code block.

Recommendation: Needs immediate attention from web engineers to assess the situation and fix the bug. It is related to the 1st finding, and since the code block works fine inside a reply screen, the engineers should compare the two functions (thread vs reply) and find the problem with relative ease. When pressing “ESCAPE” only the code block should be exited and the user should remain on the thread screen, able to carry on with his task.
Until such fix is provided, there should be a temporary message advising users to re-enter the thread and save their input (since reloading deletes the saved input).

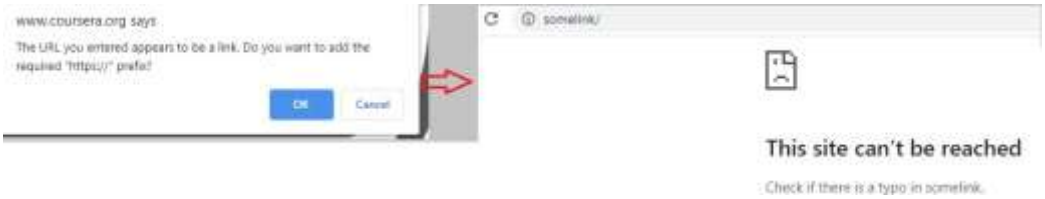
Finding 3. No constraints present when adding a link.

Severity: 3/4

System Location: "Forums" screen

Heuristics violated: #1 - Visibility of System Status
#4 - Consistency and Standards

When adding a link, if you add a random string of text, it is allowed by the system, with only the constraint of asking you to add "https://" at the start. This makes the feature prone to input error by the user and also vulnerable to the input of malicious content, thus violating web page standards.



Recommendation: There should be added some additional constraints, validating the input so the system accepts only valid web addresses. An additional filter, denying input of web pages with known malicious content (from official black-lists) would be a great security upgrade.

Finding 4. System accepts too long thread title, breaking the layout.

Severity: 3/4

System Location: "New Thread" screen, Edit "Thread" screen, "Forums" screen

Heuristics violated: #4 - Consistency and Standards
#8 - Aesthetic and Minimalist Design

If users enter a too long thread title, the system allows it and the title overflows over the forum page screen, making a portion of the screen unreadable and breaking the layout. This happens not only for extremely long words, but for sentences too. This violates web pages standards and it produces visual clutter, making hard to focus on desired info and actions for users.

Recommendation: The standards dictate the thread titles to be relatively short and descriptive. Any additional info can be contained inside the post. Adding a constraint accepting a certain number of characters (tested to preserve the layout) is a quick, cheap and easy solution. If you still wish to offer more characters to the users, there could be a description under the title containing important information with a smaller font size and wrapped text.

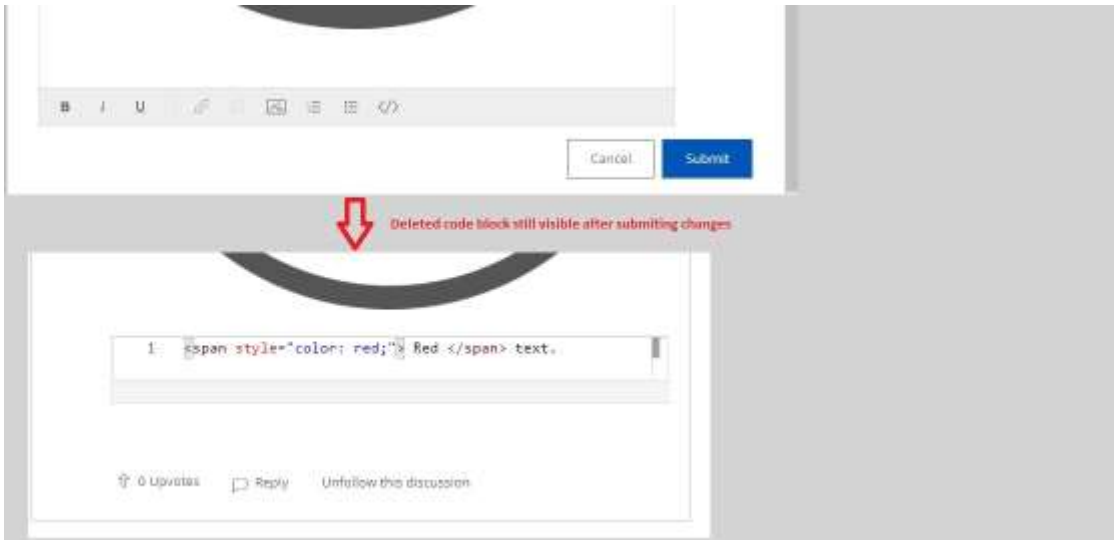
<u>Finding 5.</u> After editing a thread and hitting the submit button, the changes are not visible.

Severity: 3/4

System Location: "Forums" screen

Heuristics violated: #1 - Visibility of System Status
#4 - Consistency and Standards

After editing a thread and hitting the submit button, the changes are not visible and there is no feedback about whether the task was completed successfully or not. Users must reload the forum page in order to make changes visible, with no indication that this action is needed. Users may abort the task or get frustrated due to the lack of feedback and the poor visibility of the system's current status. Also, standards are being violated by not providing enough feedback and instant content update after the users' actions.



Recommendation: Any changes should be visible instantly after being submitted. A flash message informing the user his submit was completed successfully is a fast, easy and quick solution too (with a subtext informing him he may need to reload page in case changes aren't visible).

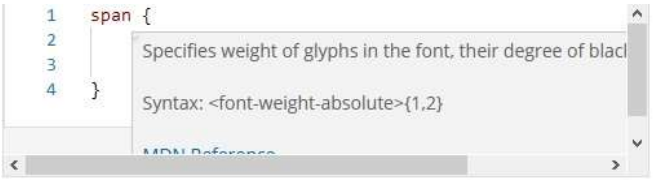
Finding 6. Code elements information tooltip with unreachable and hidden content.

Severity: 3/4

System Location: "Forums" screen

Heuristics violated: #1 - Visibility of System Status
#4 - Consistency and Standards

While users are viewing a thread or a reply and hover over code in a code block, there is a popup containing info on the part of code being hovered. This is a great feature, however often the popup is hidden under the code block scroll bar on the bottom, breaking the layout and hiding some content. But most important, the popup contains external links with info that are sometimes completely hidden and unreachable, making the users' task frustrating and nearly impossible.



Recommendation: The popup should overflow the code block and be placed over it so all the content is visible and any external links accessible for the user.

Finding 7. Luck of basic functions from the thread/reply toolbar.

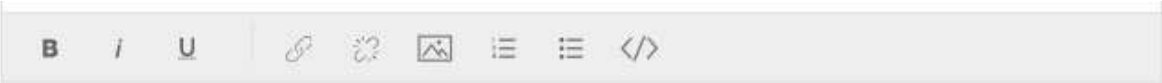
Severity: 3/4

System Location: "New Thread" screen, Edit "Thread" screen, New "Reply" screen, Edit "Reply" screen

Heuristics violated: #1 - Visibility of System Status
#4 - Consistency and Standards

#7 - Flexibility and Efficiency of Use
#9 - Error Recovery
#10 - Help and Documentation

The interface's toolbar offers no cut, copy, paste, undo, redo, etc., functions. While those are available to experienced users through Operating Systems shortcuts (e.g., Ctrl+Z -> Redo), average user is unable to use those frequently needed actions, since there is no help available. Especially, the lack of undo and redo actions make error recovery very hard for the users. And while the toolbar follows, partially, the layout of famous text editors, it essentially violates the standards set by them. Lastly, documentation should be included listing shortcuts to frequently used actions so experienced users may be able to accelerate their interaction.



Recommendation: Additional functions are essential to be added to the toolbar for the usability optimization and ease of use for the users. There is clearly free space on the right of the toolbar and the least prioritized functions could be added under a dropdown menu.