Study On User Interface(UI) Attributes Of Web Forms For Better User Experience

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Abstract: *Users face many challenges in successfully completing web forms (either online or offline i.e. application-based). This research examines the pitfalls in these forms with respect to its user interface (UI) attributes and how they affect the overall form-filling experience. The factors on which the study was carried out are based on the look, arrangement of elements, validation and alert-patterns, etc. We also explore the potential solutions to some common web form problems and provide new directions based on our explorations with surveys and case studies. This paper aims to ensure productive usability through understanding the techniques and practices of implementing responsive UI. The intention of this research is:*
i) To study issues and usability scenarios when dealing with UI of online web forms through a Case Study and illustrated examples.
ii) To consider probable solutions and reformed design practices to overcome form-filling hassles for a positive user experience.
Keywords: *user interface design, usability, user experience.*

I. Introduction

Users have a particular objective in mind when they use a website, especially its forms. Well designed forms help the users and the organization behind the website meet their respective goals. So we can establish that in spite of the many technological advancements in the field of human-computer interaction (HCI), form acts a powerful 'link' and still is a predominant way of interaction for users on the Web. Often, forms are considered to be the final and most important step of the goal completion process.

	Commerce	Community	Productivity
User Objective	Obtain Info / Buy	Join Community	Get Things Done
Business Objective	Maximize Sales	Grow & Increase Engagement in the Community	Increase Content & Time Spent on Site
Example of Type of Site	E-Commerce	Social Networks	Online Banking
Example of a Form	Checkout Form	Registration Forms	Transfer of Funds

Fig.1 (Uses of forms, based on Luke Wroblewski's Web Form Design: Filling in the Blanks)

II. Basic Web Form Components

Users usually encounter and expect the following basic components in a web form:
1. **Labels**- Describe meaning of the corresponding field.
2. **Input Fields**- Include text fields, password fields, check boxes, radio buttons, sliders, etc. and help provide feedback.
3. **Actions-**Typically links or buttons that, when pressed by the user, perform an action, such as submitting or resetting the form.
4. **Help**-Provides assistance to the user.
5. **Messages-** Give feedback based on their input. The user may receive a positive message ("Form was submitted successfully") or negative one ("The user name you have selected already exists").
6. **Validation**- Measures taken to ensure that the data submitted by the user conforms to acceptable parameters.
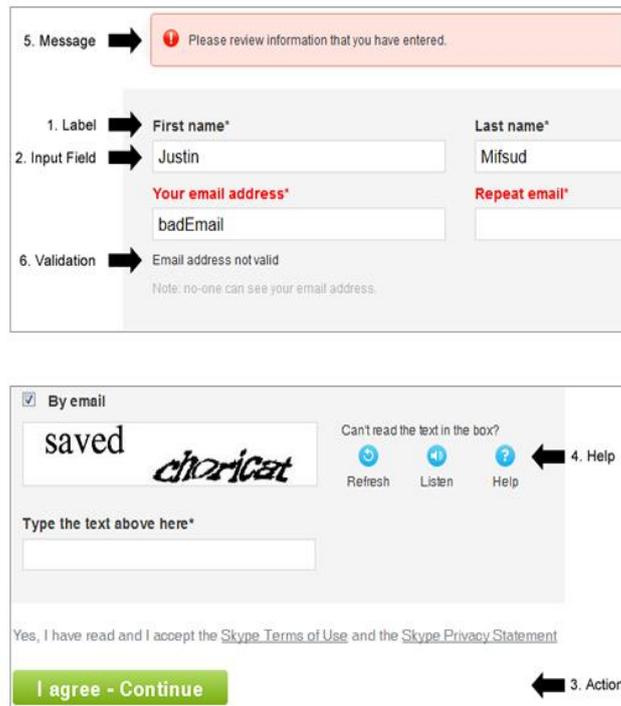
Fig.2 (Skype's registration form contains all the basic web form components)

III. Survey

Usable forms make usable websites. Hence, we conducted a survey about how users feel about online web forms.

A. Online survey (research) web form

Fig.3

5) Do you think websites ask for more sensitive info.before you are comfortable with it?

○ Yes, somewhat
○ No, I'm okay with providing sensitive info.
○ Can't say

6) Does the website notify about how your typed info.will be used?

○ Yes, I can see my info.on the profile/dashboard
○ I have no clue where my info.goes
○ Can't say

7) Is the "how many steps completed" progress bar useful?

○ Yes, I get to know how much more is left to be filled
○ No, I don't need it
○ Can't say

8) Which would you prefer?

☐ Forgiving, editable forms
☐ 'Can submit only once' forms
☐ Well validated forms
☐ Don't know

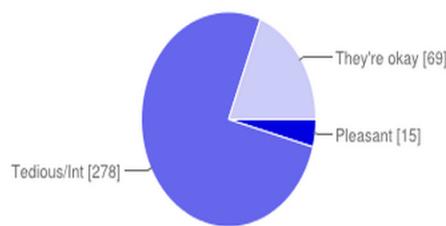**9) Any suggestion/tip for the online form makers out there?**

10) And finally, any comments on this form?

○ Haha...another online form
○ Surprisingly an interesting online form
○ No comments
○ Other:
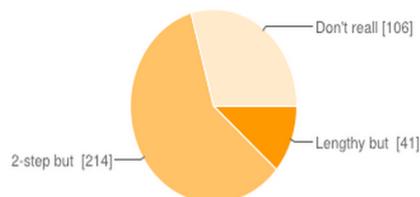
Fig.4

B. Survey Results/Responses

1) What is your experience with online forms?

Pleasant	15	4.1%
Tedious/Intimidating	278	76.2%
They're okay...	69	18.9%

Fig.5

2) What do you prefer from the following?

Lengthy but one-time fill forms	41	11.2%
2-step but multiple forms	214	58.6%
Don't really care	106	29%

Fig.6

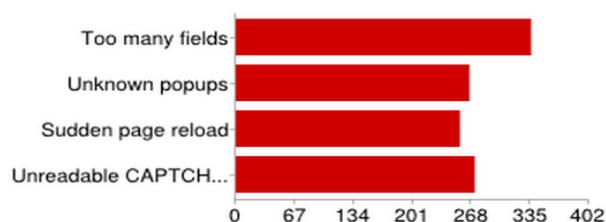**3) What is the most irritating feature(s) of online forms?**

Fig.7

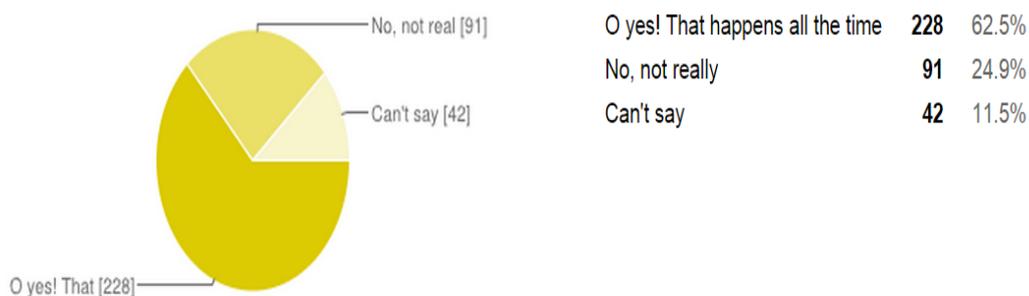**4) Have you ever experienced sudden page reload and all the filled data disappears?**

O yes! That happens all the time	228	62.5%
No, not really	91	24.9%
Can't say	42	11.5%

Fig.8

5) Do you think websites ask for more sensitive info.before you are comfortable with it?

Yes, somewhat	306	83.8%
No, I'm okay with providing sensitive info.	27	7.4%
Can't say	25	6.8%

Fig.9

6) Does the website notify about how your typed info.will be used?

Yes, I can see my info.on the profile/dashboard	38	10.4%
I have no clue where my info.goes	298	81.6%
Can't say	22	6%
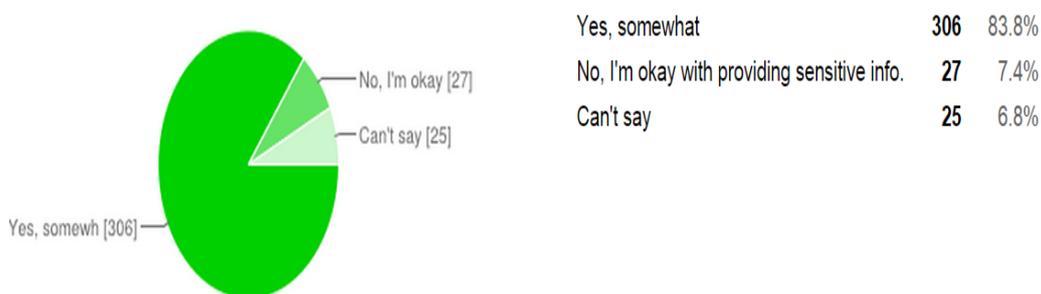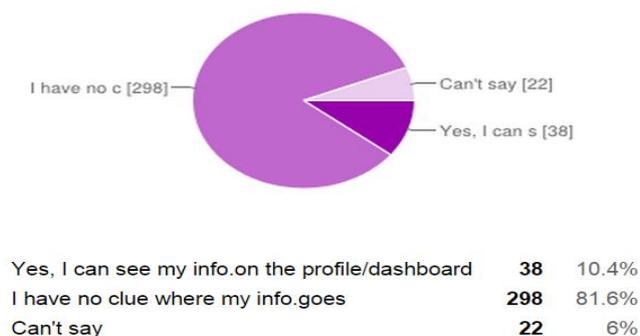
Fig.10

7) Is the "how many steps completed" progress bar useful?
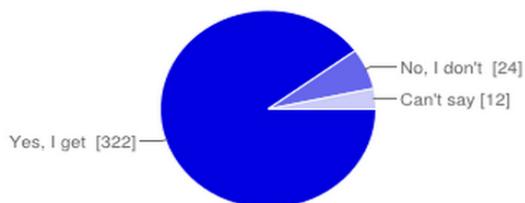
Yes, I get to know how much more is left to be filled	**322**	88.2%
No, I don't need it	**24**	6.6%
Can't say	**12**	3.3%

Fig.11

8) Which would you prefer?

Forgiving, editable forms	**221**	60.5%
'Can submit only once' forms	**268**	73.4%
Well validated forms	**238**	65.2%
Don't know	**176**	48.2%

Fig.12

9) Any suggestion/tip for the online form makers out there?

Short & sweet will be best.
This form covers almost all points.
keep it short. it is very irritating to fill lengthy forms
Forms should be like resumes. Lesser the number of pages, better they appear and easier they are to fill. No ambiguous words or phrases, where user spends time to figure out meaning. No references to check appendix, page no etc as we have to government forms. And some animations can make the form filling interesting.
Keep it short

Fig.13
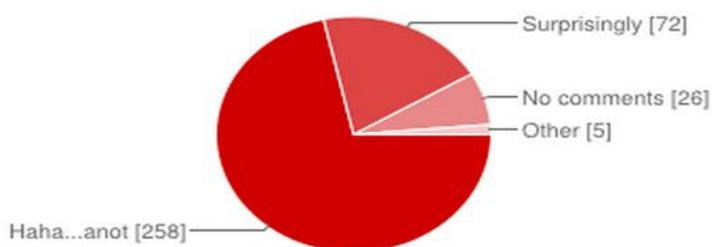
10) And finally, any comments on this form?

Fig.14

IV.   Common Web Form UI Mistakes

A. **Failing to built trust and credibility amongst users**
Not having secure browser environment, failing to depict the organization as a trustworthy business and being unsuccessful in establishing the forms critical presence.

B. **Failing to reinforce interest**
Continuous bombardment of advertisements generates loss of interest, too many page reloads misguides the user, excessive pop-ups distract the user and displaying lengthy form fields lead to boredom.

C. **Failing to notice Flat form UI problems**
1.   Insufficient distinction between form elements (e.g., fields versus labels versus instructions versus buttons)
2.   Lack of distinct hierarchy within categories of form elements (e.g., primary versus secondary buttons)
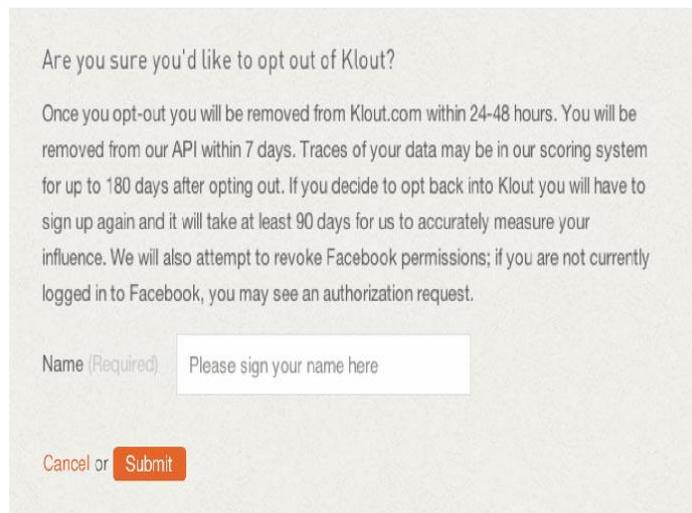

Fig.15

D. *Failing to notice obvious UI patterns*

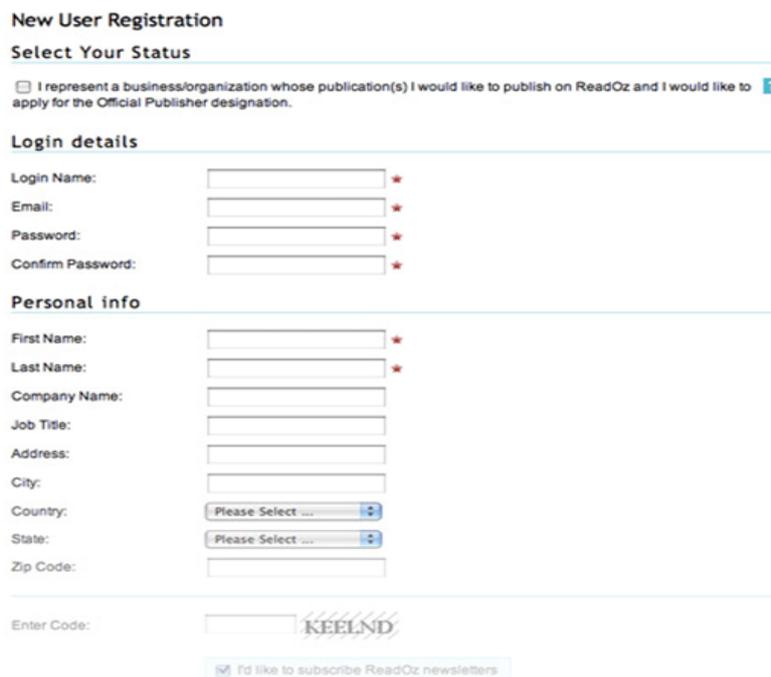**i.   Lengthy forms** - Users get irritated and easily bored when they come across extensive form fields.

Fig.16

ii. **Fixing & highlighting fields-** Facebook released graph search and realized that a search field that looked hollow was more effective than a solid colored one.
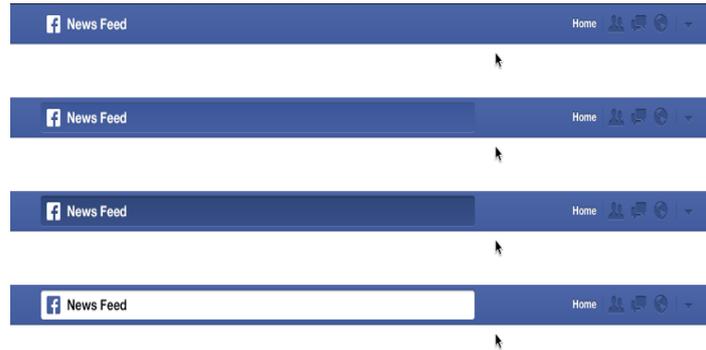

Fig.17

iii. **Improper distinction between Primary and Secondary buttons-**Lack of separation between buttons causes confusion amongst the users and may result in undesirable form actions with more prominent styling on the primary action button and relative to secondary action buttons. Also, buttons should be mainly used for the primary action and links for secondary actions.
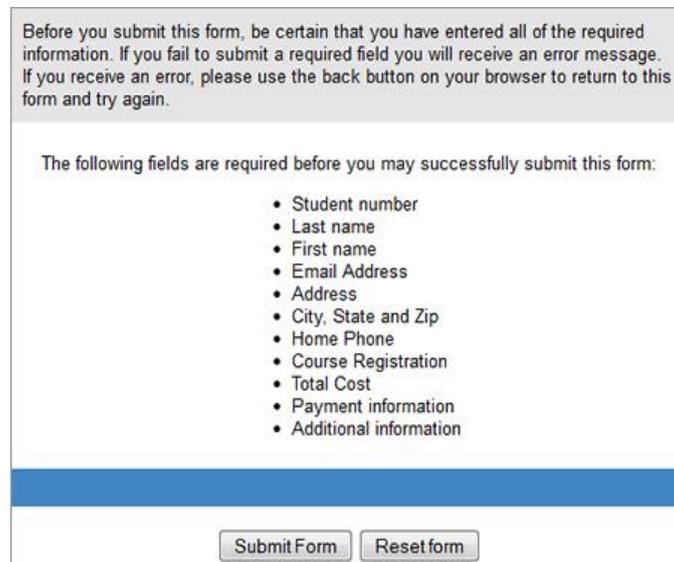

Fig.18

iv. **Overwhelming alerts**- Users get shocked or distracted with untimely and larger-than-necessary alerts during form validation process. Too many warnings may scare the user and discourage him.
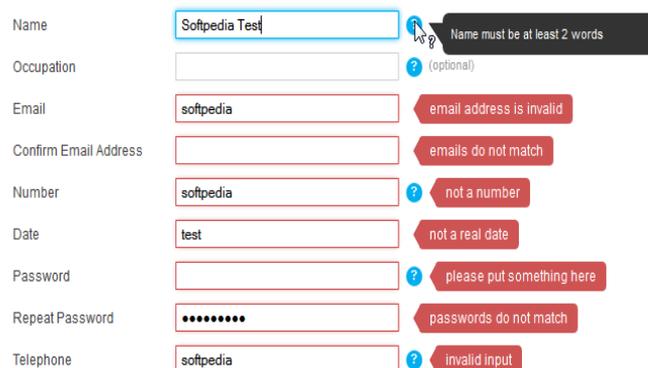

Fig.19

v. **Use of illegible CAPTCHA**- It's an acronym for "Completely Automated Public Turing test to tell Computers and Humans Apart and is a type of challenge-response test used in computing to determine if the user is human or not. Sometimes, this CAPTCHA image proves to be unreadable for regular users and results in frustration.
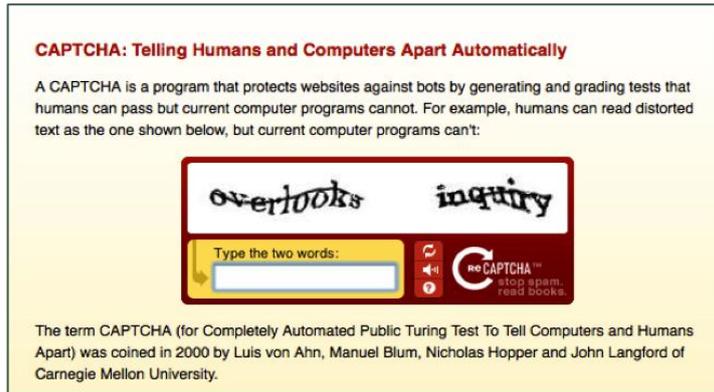

Fig.20

V. Solution To The Pitfalls Encountered

After studying the various issues experienced during the process of filling web forms, following are some of the helpful practices that we can keep in mind while designing online forms.

A. Clear Conversation

A form is a conversation. And like a conversation, it represents two-way communication between two parties, in this case, the user and the organization. In fact, the user has filled out the form in order to initiate communication with the organization. For instance, with a social network, a user would fill out a registration form to inform the organization that they would like to join.

A **form is a conversation, not an interrogation**. Aggressive wording in labels will make users feel edgy, and (if they do not leave) they will most likely give you the answers that you want to hear, rather than the truth.

Order the labels logically, reflecting the natural flow of a conversation. For example, wouldn't it be weird to ask someone their name only after having asked a number of other questions? More involved questions should come towards the end of the form.

Group related information, such as personal details. The flow from one set of questions to the next will better resemble a conversation.

Fig.21

As in a real conversation, each label should **address one topic at a time**, helping the user to respond in the corresponding input field. The **natural pauses** in a conversation will indicate where to introduce white space, how to group labels and whether to break the form up over multiple pages. In any conversation, people get distracted by background noise. So, **remove clutter** such as banners and unnecessary navigation that might distract users from filling out the form.

B. Naming conventions

Avoid generic words such as "Submit" for actions, because they give the impression that the form itself is generic. Descriptive words and phrases, such as "Join LinkedIn," are preferred.

1. Help

1.1 Text to accompany forms. We should never have to explain to users how to fill out a form. If it does not look like a form or it's too complicated to fill out, then redesigning it is your only option. Accompanying text should be used only where needed, such as to explain why credit card data is being requested or how a birth date will be used or to link to the "Terms and conditions." Such text tends to be ignored, so make it succinct and easy to read. As a rule of thumb, do not exceed 100 words of explanation (combined).

1.2 User-triggered and dynamic help: Rather than include help text next to each input field, show it only where required. You could show an icon next to an input field that the user can click on when they need help for that field. Even better, show help dynamically when the user clicks into an input field to enter data. Such implementation is becoming more common and is relatively easy to implement with JavaScript libraries such as jQuery.

2. Messages

2.1 Error message

They notify the user that an error has occurred, and it usually prevents them from proceeding further in the form. Emphasize error messages through color (typically red), familiar iconography (such as a warning sign), prominence (typically at the top of the form or beside where the error occurred), large font, or a combination of these.

2.2 Success message

Use this to notify users that they have reached a meaningful milestone in the form. If the form is lengthy, a success message encourages the user to continue filling it out. Like error messages, success messages should be prominent. But they should not hinder the user from continuing.

3. Validation

3.1 Only where needed

Excessive validation is as bad as its complete absence, because it will frustrate users. Restrict validation to confirming key points (such as the availability of a user name), ensuring realistic answers (such as not allowing ages above 130) and suggesting responses where the range of possible data is finite but too long to include in a drop-down menu (such as a country-code prefix).

3.2 Smart defaults

Use smart defaults to make the user's completion of the form faster and more accurate. For example, pre-select the user's country based on their IP address. But use these with caution, because users tend to leave pre-selected fields as they are.

C. Lazy Registration

To fully appreciate the problem of registration, we should consider an annoyance that has led to the opinion that sign-up forms must die. This certainly doesn't mean they should be completely omitted but rather that they should be only one part in the process of introducing users to a system, and **should come late in the process**. Such an approach is called "lazy registration" and relates to the account registration pattern.

When would you actually use lazy registration? Although it may seem like lazy registration could be used all the time, some circumstances are ideal: When it is important to familiarize users with your system before they sign up; this can be a crucial step in their process of deciding whether to register. This pattern is

meant to allow users to use your system and **take action before registering**. If satisfied with your service so far, users will regard this quick act of registration as just another small step in the entire process and not an obligation. The shopping cart is a good example of this pattern: users can browse and choose products and only have to register when they proceed to check out.

Fig.22

D. Progressive Disclosure

This pattern is used to show only the information or features relevant to the user's current activity and to delay other information until it is requested. By hiding more complex or infrequently used features, you de-clutter the user interface; by revealing them only as they are needed, you help users perform a complex, multi-step process on a single page. The goal is to show only essential information in the first step and then invite users to take the next step. When the user completes a step, you reveal the information in the next step, keeping all previous steps visible. By keeping previous steps visible, you allow users to change what they have entered. And the data they input in the current step can affect the behavior of the next step. Simple Web forms often allow just one action ("Submit," "Save" or "Send"). The user knows exactly what their final action in filling out the form will be, because they have only one option. However, users may sometimes be faced with several options and have to distinguish between primary and secondary actions.

When users have several options, **highlighting primary actions** and de-emphasizing secondary actions are good practice.

This can be done in two ways:
1. By giving primary and secondary actions different colors; for example, giving primary actions a vibrant color and secondary actions a shade of gray.
2. By styling primary actions as buttons and secondary actions as links.

Fig.23

E. Breadcrumbs

Breadcrumbs show the **path from the front page of the site to the current location of the users** in the website's page hierarchy. They are a form of secondary navigation that helps users understand the hierarchy and structure of the website. Breadcrumbs start with the home page and end with the page currently being viewed. Each label in a breadcrumb trail is linked to its respective page or section in the hierarchy, the exception being the one for the current page, which should just be an unlinked label.

Fig.24

(Apple's breadcrumbs are graphic elements that fit the overall design of the website well,)

Breadcrumbs take up minimal space and are usually positioned at the top of the page, below the header and above the content. They would serve no purpose on the home page and so should not appear there. Breadcrumbs can appear simply as text links separated by the ">" sign or they can be graphic elements, like the breadcrumbs on Apple's website.

F. Steps Left

This pattern is widely implemented when users have to **fill in data in multiple steps**. The purpose of this pattern is to:
- Guide the users.
- Explain them the scope of the process by clearly stating how many steps are needed to complete it.
- Show the user's current position in the process by visually highlighting the current step.

Fig.25 (StatementStacker clearly shows the number of steps and highlights the current step)

Steps are usually displayed horizontally and connected by arrows, showing the order in which the steps will be performed. Also, each step is usually marked with a large number and very concise description of what users should do in that step. The important thing here is consistency: a progress indicator should always appear in the same position across the pages and show users where they are at. This pattern is usually combined with the well-known "wizard" pattern to create a multi-step process, such as for registration or a shopping cart.

Fig.26

VI.   Conclusion & Future Scope

In this paper, we first explained the various scenarios when filling out a web form and certain challenges that the users encountered. We further discussed the benefits of using modern UI practices to modify the form elements and their arrangement for a positive user experience (UX). Each web form element's characteristic plays an important role in the success of the entire web page. The characteristics may include its positioning, design, structure, etc. We elaborated some common shortfalls with respect to each web form element and then provided possible solutions to each; with illustrated figures and examples. Since newer websites and apps are being developed every day, there is a vast scope for conducting more research and detailed analysis on how user interface can help improve the overall functioning as well as mass-reach of the respective platform. There can also be an opportunity to implement these practices first hand and formulate case studies based on the results observed. We believe these tips and study based on the user interface of web forms can simplify the hectic process of online form filling.

Acknowledgment

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