



Principles of GUI Design and Programming



User Research and Modeling

Contents

- ▶ User goals and needs
- ▶ Personas



User Goals

- ▶ The user's goals
 - ▶ Are the final outcomes they hope to achieve
- ▶ For example
 - ▶ You want to record a program on live TV
- ▶ This could involve multiple user tasks
 - ▶ Tuning into the right station
 - ▶ Setting up a video recorder
 - ▶ Setting a time to start and stop recording



User Goals

- ▶ The user's goal is not
 - ▶ To pick a station
 - ▶ Set the time to record
- ▶ These are just tasks necessary to achieve the goal



User Needs

- ▶ While the user's goal
 - ▶ Is the final state the user wants to reach
- ▶ The user's needs are
 - ▶ Everything the user needs to achieve his or her goal



Example: Getting Food

- ▶ **My goal**
 - ▶ I am hungry and need to eat a hamburger
- ▶ **My Needs**
 - ▶ I need to go to a restaurant
 - ▶ I need to see a menu
 - ▶ I need to order
 - ▶ I need to pay
 - ▶ I need a place to sit and eat



Requirements

- ▶ It is recognized that we need requirements
 - ▶ You need to know what to build before you build it
 - ▶ Many projects *failed* due to misunderstood requirements
- ▶ There are two categories
 - ▶ Functional requirements
 - ▶ What the product must do
 - ▶ Non-functional requirements
 - ▶ How fast, what volume, etc.



Modeling the User

- ▶ One of the steps in gathering requirements is to understand the user
 - ▶ What will suffice for one user will be insufficient for another
 - ▶ Different users will have different requirements
- ▶ In general,
 - ▶ There are categories of typical users
 - ▶ We need to be able to categorize the users into categories, called *personas*



Personas

- ▶ **Personas represent the characteristics of groups of people**
 - ▶ Age range
 - ▶ Occupation
 - ▶ Education
 - ▶ Marital status
 - ▶ Location
 - ▶ Computer experience
 - ▶ Online usage per week
 - ▶ Goals
 - ▶ Relevant life story



Personas

▶ Personas

- ▶ Are meant to capture the important information about key groups of users
- ▶ Allow you to get to know the different types of users
- ▶ Allow you to design to accommodate
 - ▶ The strengths
 - ▶ Weaknesses
 - ▶ Needs
 - ▶ Interests of each user



Example: Banking Application

- ▶ User: Lucy
- ▶ Age: 17-25
- ▶ Income: 5-15K
- ▶ Debts: 5-10K student loans
- ▶ Internet usage: 10-15 hrs
- ▶ Mobile usage: 10-15 hrs
- ▶ Employment:
 - ▶ Student
 - ▶ Sales clerk (15 hrs)
- ▶ Needs:
 - ▶ Chequing
 - ▶ Loan repayment
 - ▶ Loans
- ▶ Goals:
 - ▶ Loan repayment
 - ▶ Gain employment
- ▶ Interests:
 - ▶ Music
 - ▶ Sports
- ▶ Story
 - ▶



Example: Banking Application

- ▶ User: Bob
- ▶ Age: 50-60
- ▶ Income: 75-150K
- ▶ Debts: 30K mortgage
- ▶ Internet usage: 10-15 hrs
- ▶ Mobile usage: 5-8 hrs
- ▶ Employment:
 - ▶ Shipping manager
 - ▶ Accountant
 - ▶ Real estate
- ▶ Needs:
 - ▶ Chequing
 - ▶ Loan repayment
 - ▶ investments
- ▶ Goals:
 - ▶ Loan repayment
 - ▶ retirement
- ▶ Interests:
 - ▶ Music
 - ▶ Travel
- ▶ Story
 - ▶



Persona

BACKGROUND

- 15, Female
- Ongoing Private Education
- Ambitious
- Comfortable using technology to communicate

MOTIVATIONS

- Keeping in touch with her network
- Fashion/street cred
- Keeping up with peers.

FRUSTRATIONS

- Sad people trying to be 'friends' on Facebook
- Having to be in bed @ 11pm
- Being swamped in friends updates
- Missing important status updates

Ginnie

Receives private tutoring in Maths and English as these are not her strong subjects. Enjoys playing for the school's 2nd teams for netball and Lacrosse and is good at art.

She loves recording her favourite shows: ER and Sun Valley High on Sky+ and spends some of her time on her Laptop that Daddy bought her watching videos on YouTube, downloading music, keeping up to date with her friends on Facebook and chatting via MS IM to her cousin who is at University in Leeds.

She loves Ugg boots and Abercrombie & Fitch and uses the Internet to shop and find the cheapest prices.

€ CAPLIN



"I want to easily hook up with my friends whilst watching TV"



Persona

Nathan Lawrence

Senior Editor



GOAL: Process releases as fast as possible Processing releases fast is Nathan's first goal. "In this job, you never knows when the next rush will come, so better be prepared".

GOAL: Avoid mistakes at all costs Nathan knows how costly mistakes can be for his team and for the customers. Producing mistake-free releases is on his mind at all time. Speed must be balance with accuracy.

GOAL: Work as a team Nathan never hesitates to help his teammates. "Work gets done faster when we all help each other".

Nathan is a **Senior Editor** at Marketwire, British Columbia office. Nathan holds a **BA degree in English and Biology** from the University of Victoria. Nathan has been working as an editor for 7 years and considers himself very experienced with the process of editing new releases. He is highly motivated and always goes the extra mile to excel at his job.

Nathan's main responsibilities are to **process incoming releases** and **proof releases**. Additionally, he also performs **administrative duties** such as filing paperwork, invoicing, completing transmission reports, and preparing summary reports for the overnight shift. News release editing is more often than not a straightforward process, but can create highly stressful situations, mentions Nathan. "Workload is very hard to predict. You can be smooth sailing one moment and the next one be overloaded with work, not to mention the stressful days of earnings releases". Nathan's working philosophy is "the team always comes first." He never hesitates to help other editors on his team. He is often considered by his teammates as the go-to person when someone has a problem to solve.

Senior Editor

Marketwire
Vancouver, BC, Canada
Age 33

Software

- NewsPro
- Release Editor
- Microsoft Word
- Microsoft Excel
- Microsoft Outlook

Education

- BA in English and Biology from the University of Victoria

Key Tasks

- Processing Releases
- Proofing Releases
- Helping team members
- Following-up with clients
- Filing paperwork (invoices, transmission reports)
- SEDAR filing

Persona

Nathan Lawrence

Senior Editor

Nathan's first priority is always to process and deliver news releases **as fast as possible**. However, this cannot be done at the expense of quality. **Mistakes and errors are costly** for both the customers and the business. "If we are not careful enough, mistakes will happen, editing time will increase, and we will suffer as a team." To help him in his day-to-day tasks, Nathan **uses several computer tools**. He does not consider himself tech savvy, but understands the technology he is working with to get the job done. Nathan has several **opinions about the software tools** he uses at Marketwire, especially the **Release Editor** application. He points out the tool works well in general, but issues occur in some specific situations. So what are the issues?

Hard to navigate in document. Nathan often complains about the navigation in Release Editor. "I don't know why, but when I have long releases, the tool breaks the document into multiple sections. I cannot easily navigate in the document; I have to search and navigate between sections. This is not consistent with other word processing tools I have used in the past." Nathan also points out the lack of control in defining his own sections. "The tool defines all the break points between sections, most often in ways that are not logical to my editing workflow."

Table editing cumbersome. "The table tool is hard to use. The workflow is not always intuitive and I end-up wasting a lot of time formatting tables. I think part of the tool should be automated; why can't I only click one button to do the basic formatting." Nathan would like to see more intelligence in the tool. "If I have 3 identical tables to format, why can't I do the work once and apply to same format to the other two tables." Overall, Nathan feels the table tool should be a lot more efficient so less time is wasted on table editing.

Delays and lack of feedback. In general, Nathan lacks confidence in the Release Editor. "It's not that I don't trust the application, but sometimes odd behaviours happen. For example, properties of the original text (e.g. bolding) won't come across to Release Editor. Also, the preview screens don't always show the text as it will appear in the published release." Nathan is also very critical of the responsiveness of the tool. "There are many things that are slow: saving, refreshing the screen, going back and forth between sections, etc. When you add all this together, I maybe loosing several minutes on each release; the efficiency of the tool must be improved."

Nathan acknowledges he's not a power user of release editor, but he believes the tool should be designed in such a way every editor is able to work with it in an efficient manner. "Our main focus is always to deliver accurate news releases as fast as possible."

"When you add all this together, I maybe loosing several minutes for each release; the efficiency of the tool must be increased."

Creating personas

- ▶ Collect data on the users
- ▶ Determine the commonalities and differences between users
- ▶ Create personas to describe the users
- ▶ Create a 1-2 page persona for each type including
 - ▶ Picture
 - ▶ Values, interests, education, lifestyle, needs, attitudes, goals, behaviour patterns
 - ▶ Extra details to make the persona more realistic



Creating personas

- ▶ Create scenarios where the persona has problems to overcome
- ▶ Distribute the persona to all design team members
- ▶ Modify the persona as required
- ▶ Normally, a project will require several personas
- ▶ The persona that represents the largest group can be selected as the main persona



Data gathering

- ▶ In order to develop personas, we need to gather the data for them
- ▶ This can be done by
 - ▶ Interviews
 - ▶ Questionnaires
 - ▶ Observation



Interviews

- ▶ Can be semi-structured or unstructured
- ▶ Used to gather all the information about the users
- ▶ Can also be used to discover scenarios as to
 - ▶ how the users perform their jobs and
 - ▶ How they will use the system



Focus groups

- ▶ Many users meet together
- ▶ Good for finding
 - ▶ Areas of consensus
 - ▶ Areas where users disagree
- ▶ Gives the shareholders a chance to discuss things among themselves and develop a new understanding



Questionnaires

- ▶ **Good for**
 - ▶ Getting initial responses to common questions
 - ▶ Age, occupation, income, experience, etc.
 - ▶ Can also ask for opinions about what is good and bad about the current way of doing things



Observation

- ▶ Direct observation of the users will reveal how they perform their tasks and problems they encounter
- ▶ Indirect observation via diaries allows the users to record what they do and the problems
- ▶ You can also log their actions to study what they do and how long it takes



Data gathering guidelines

- ▶ Identify stakeholder needs by examining their behaviour and tools
- ▶ Involve all stakeholders to not miss anyone
- ▶ Support the data gathering with
 - ▶ Props
 - ▶ Prototypes
 - ▶ Task descriptions

