BIT 2ⁿᵈ Year
Semester 3
IT 3405

User Interface Design
Chapter 6 - User Centered Design

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INTENDED LEARNING OUTCOMES

- Define the user centered design and its component
- Describe the role of human user in UCD
- Identify the importance of mental model and user behavior
- Use persona and scenario in UCD

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Sub Topics

6.1. Importance of User Centered Design (UCD) and Usability

6.2. Golden rules of Design

6.3. Process of UCD

6.4. Mental Model and User Behaviour

6.5. Persona and Scenario

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6.1.
IMPORTANCE OF USER CENTERED DESIGN (UCD) AND USABILITY

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How things are understood

| How the customer explained it | How the project leader understood it | How the analyst design it | How the programmer wrote it | How the business consultant described it |

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How things are delivered
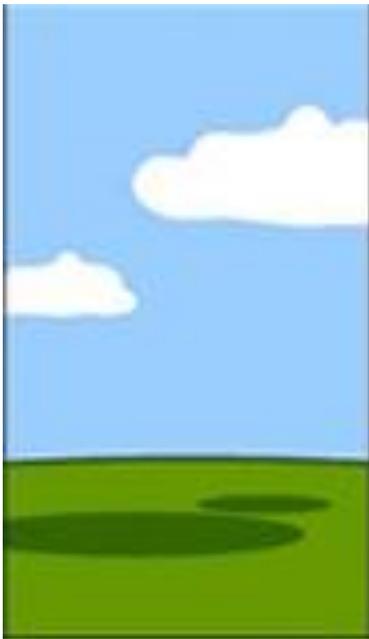
How the project was documented

What operations installed

How the customer was billed

Finally....this is what the customer really wanted

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'**User-centered design' (UCD)** is a broad term to describe design processes in which end-users influence how a design takes shape.

It is both a **broad philosophy** and **variety of methods.**

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There is a spectrum of ways in which users are involved in UCD but the important concept is that users are involved one way or another.

For example, some types of UCD consult users about their needs and involve them at specific times during the design process; **typically during requirements gathering and usability testing**.

At the opposite end of the spectrum there are UCD methods in which users have a deep impact on the design by being involved as partners with designers throughout the design process

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So, in other words, User-centered design (UCD) is an approach for employing usability.

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It is a structured product development methodology that involves users throughout all stages of product / software development, in order to create a Web Site OR Web Application OR Desktop Application that meets users' needs.

This approach considers an organization's business objectives and the user's needs, limitations, and preferences.

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How UCD Originated?

The term 'user-centered design' originated in Donald Norman's research laboratory at the University of California San Diego (UCSD) in the 1980s and became widely used after the publication of a co-authored book entitled:

User-Centered System Design: New Perspectives on Human-Computer Interaction (Norman & Draper, 1986).

Norman built further on the UCD concept in his seminal book *The Psychology Of Everyday Things (POET) (Norman, 1988).*

In POET he recognizes the needs and the interests of the user and focuses on the usability of the design.

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And After that....

He offers **four basic suggestions** on how a design should be:

- Make it easy to determine what actions are possible at any moment.

- Make things visible, including the conceptual model of the system, the alternative actions, and the results of actions.

- Make it easy to evaluate the current state of the system.

- Follow natural mappings between intentions and the required actions; between actions and the resulting effect; and between the information that is visible and the interpretation of the system state.

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The Result was….

These recommendations place the user at the center of the design. The role of the designer is to facilitate the task for the user and to make sure that the user is able to make use of the product as intended and with a minimum effort to learn how to use it.

Telling designers that products should be intuitive is not enough; some design principles are needed to guide the design. Norman (1988) suggested that the seven principles of design are essential for facilitating the designer's task:

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- Avoid bad Design,

  instead use UCD to make good designs

Good   Good   Not so Good

Why it is good or bad?

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But What Makes it Good? Possible reasons

- Functionality
- Speed & efficiency
- Reliability, security, data integrity
- Standardization, consistency
- **USABILITY !**

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- ## What USABILITY?

  …The human user of any system is the focus of the design process. Planning and implementation is done with the user in mind, and the system is made to fit the user, not the other way around….

  We will discuss usability in detail next chapter

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6.2.
GOLDEN RULES OF DESIGN FOR HCI

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What is a Design?

➢ Design is a process to define a solution for a given problem.

➢ Simply design can be defined as "*achieving goals in the best possible way within constraints*"

➢ Design helps to focus us on certain things: Such as
  ➢ **Goals**
  ➢ **Constraints**
  ➢ **Trade-offs**

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Design Goals and Constraints

➢ **Goals –**

➢ Address problems such as Purpose of the design, Who is it for?, Why do they want it?

➢ Eg: Designing a wireless personal movie player, thinking about young affluent users wanting to watch the latest movies whilst on the move and download free copies, and perhaps wanting to share the experience with a few friends.

➢ **Constraints –**

• What materials must we use? What standards must we adopt? How much can it cost? How much time do we have to develop it? Are there health and safety issues?

• Eg: personal movie player: does it have to withstand rain? Must we use existing video standards to download movies? Do we need to build in copyright protection?

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Trade-offs

- **Choosing which goals or constraints can be relaxed so that others can be** met.

- Eg: we might find that an eye-mounted video display, a bit like those used in virtual reality, would give the most stable image whilst walking along. However, this would not allow you to show friends, and might be dangerous if you were watching a gripping part of the movie as you crossed the road.

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Understand Your Materials

Eg: a chair with a steel frame and one with a wooden frame.

They are very different: often the steel frames are tubular or thin L or H section steel. In contrast wooden chairs have thicker solid legs.

If a wooden chair is made using the design for a metal one it would break; if the metal chair is made in the design for the wooden one it would be too heavy to move.

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Golden rule of design for HCI

For Human–Computer Interaction the obvious materials are the **human** and the **computer**.

understand computers
- limitations, capacities, tools, platforms

understand people
- psychological, social aspects
- human error

and their interaction …

"In the last few sections, we try to understand all these components to start better design"

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"A Good Design" Means

- Systems are built for **humans;** must be designed for the user
- Recognize individual differences; appreciate design implications of these **human factors**
- Recognize the design of things, procedures, etc., influences human behavior and well-being
- Emphasize empirical data & evaluation
- Rely on the scientific method
- Things, procedures, environments, and people do not exist in isolation

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A Good Design Is …

- NOT just applying checklists and guidelines
  - These can help, but UCD is a whole philosophy
- NOT using oneself as the model user
  - Know your real users; recognize variation in humans
- NOT just common sense
  - Knowing how to design a fire alarm so it will be heard over background noise is not something we all know.
  - The HF specialist knows where or how to get the information needed to answer design questions

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6.3.
PROCESS OF UCD

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User Centered Design Process

■Steps in the Standard User-Centered Design Process

User surveys
- Observe how users use websites
- Interview users in their workplace

Analysis of user requirements
- Create user scenarios
- Establish a user profile

Prototype
- Card sorting
- Design prototype

Design revisions based on feedback received.

Assessment of usability
- Heuristic evaluation
- User tests

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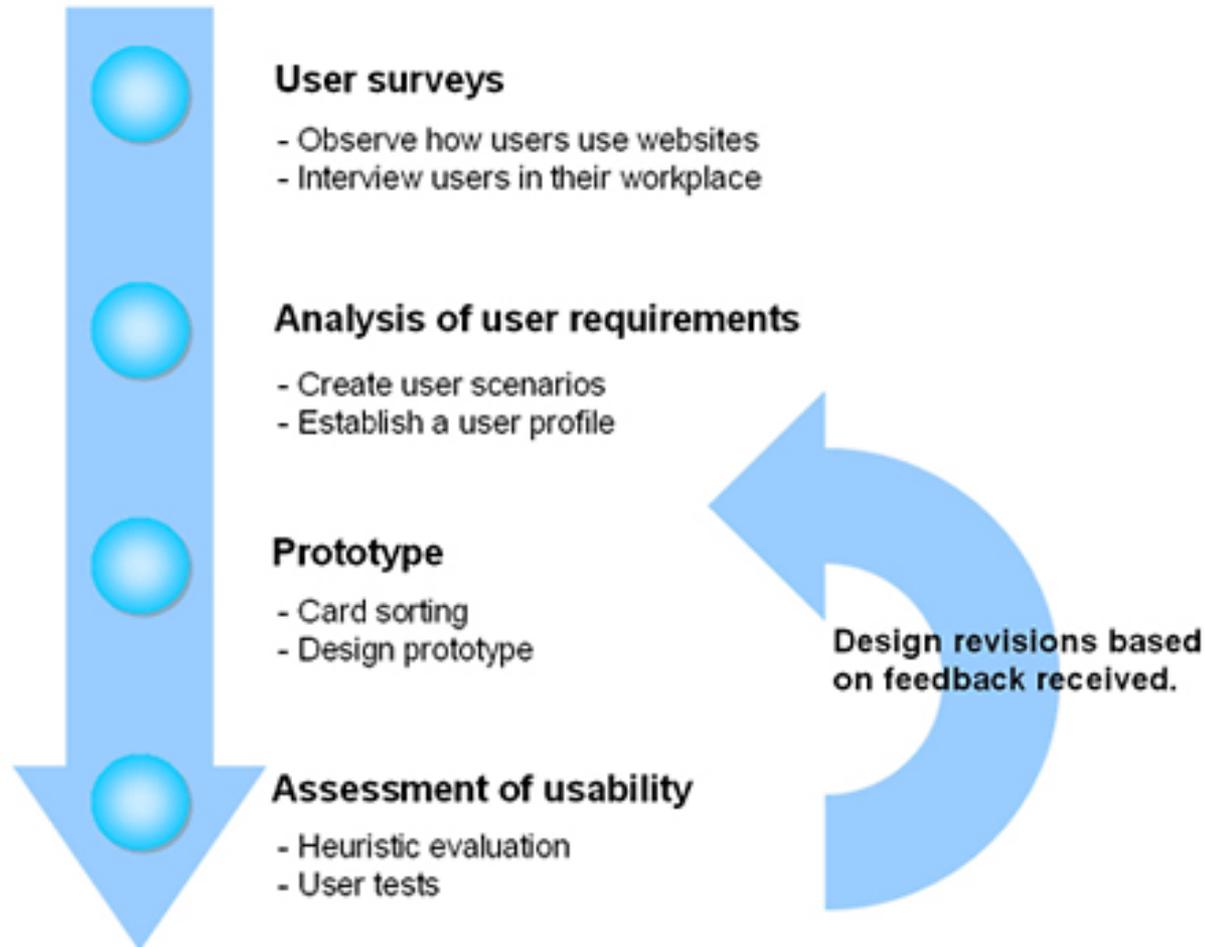
✔ **User surveys:**

- What sort of people are the product users? How do they use the product?

✔ **Analysis of user requirements:**

- What sorts of information and functions do product users want?

✔ **Prototype:**

- Creation of a design prototype.

✔ **Assessment of usability:**

- How do product users rate the product?

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✓ **User surveys:**

- What sort of person is your friend? What is their lifestyle like?

✓ **Analysis of user requirements:**

- What does your friend want?

✓ **Prototype:**

- The present you have chosen this time.

✓ **Assessment of usability:**

- Feedback on how your friend liked the present.

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6.4.
MENTAL MODEL AND USER BEHAVIOR

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These actions happen in a chronological sequence: one, two, three.

1. What does the user want? The user has an idea about something they want or need.
2. How do they try to achieve that want? What's their course of action? They have an idea about a course of action, and
3. What do they expect to happen? They have an expectation that this course of action will let them fulfill their want or need.

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User's Mental Model

1

Goal:

The user's goal; their want or need (the object of desire).

2

Message:

The user's message; the action they think will get them closer to their want or need.

3

Expectation:

The user's expectation; the result the user beleives will follow their action.

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An expectation can't be formulated without a message (course of action), and the message (course of action) can't be formulated without the initial goal. We can illustrate this by expressing our sequence of events as a simple equation:

| Goal | + | Message | = | Expectation |
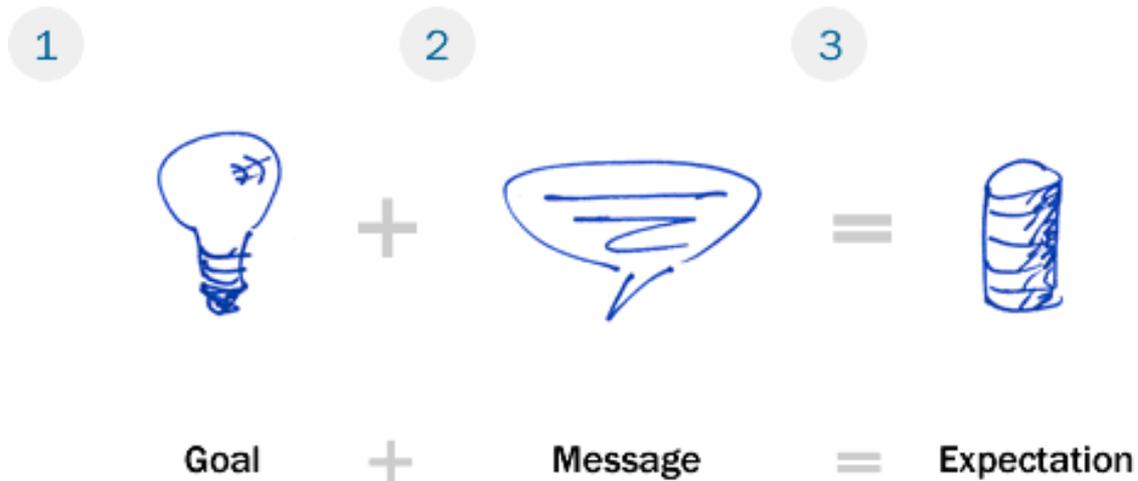
The user's mental model

The goal, message, and expectation comprise the user's **mental model**.

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Mental Model

Mental models include what a person thinks is true, not necessarily what is actually true.

Mental models are similar in structure to the thing or concept they represent.

Mental models allow a person to predict the results of his actions.

Mental models are simpler than the thing or concept they represent. They include only enough information to allow accurate predictions.

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Figure 1 (adapted from Norman (1988) p. 16): The problem of ensuring that the user's mental model corresponds to the designer's model arises because the designer does not talk directly with the user. The designer can only talk to the user through the "system image" - the designer's materialised mental model. The system image is, like a text, open to interpretation.

Outcome of UCD

UCD forces yourself to identify and consider the relevant human factors in your design

UCD Helps reduce the number of decisions made out of the blue, and helps focus design activities

UCD Helps document and defend decisions that may be reviewed later

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Identify people who will be affected

who is a User?

It is necessary to think carefully about who is a user and how to involve users in the design process.

Obviously users are the people who will use the final product or artifact to accomplish a task or goal.

But there are other users as well.

The people who manage the users have needs and expectations too.

What about those persons who are affected in some way by the use of the artifact or use the products and/or services of the artifact? Shouldn't their needs and expectations be taken into consideration in the design process?

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Main types of users to be identified

Types of Users

- **Primary Users** are those persons who actually use the product

- **Secondary Users** are those who will occasionally use the product or those who use it through an intermediary

- **Tertiary Users** are persons who will be affected by the use of the product or make decisions about its purchase.

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The successful design of a product must take into account the wide range of stakeholders of the product.

Not everyone who is a stakeholder needs to be represented on a design team, but the effect of the product on them must be considered.

Focus Group

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First Step in UCD - know your user

who are they?
- probably not like you!
- Young/old, experienced/novie
- Biased to their interests and abilities

talk to them
- People says what they want not what organization wants
- get users involved throughout the design ("Participatory Design")
- Get their deep knowledge of complex work and needs

watch them
- People do not tell everything
- People say something do different thing

use your imagination

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Different users …

- **Physical attributes**
  (age, gender, size, reach, visual angles, etc…)
- **Physical work places**
  (table height, sound levels, lighting, software version…)
- **Perceptual abilities**
  (hearing, vision, heat sensitivity…)
- **Cognitive abilities**
  (memory span, reading level, musical training, math…)
- **Personality and social traits**
  (likes, dislikes, preferences, patience…)
- **Cultural and international diversity**
  (languages, dialog box flow, symbols…)
- **Special populations, (dis)abilities**

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How to get users invovle in the process

ways to involve users in the design and development of a product.

Technique	Purpose	Stage of the Design Cycle
Background Interviews and questionnaires	Collecting data related to the needs and expectations of users; evaluation of design alternatives, prototypes and the final artifact	At the beginning of the design project
Sequence of work interviews and questionnaires	Collecting data related to the sequence of work to be performed with the artifact	Early in the design cycle
Focus groups	Include a wide range of stakeholders to discuss issues and requirements	Early in the design cycle
On-site observation	Collecting information concerning the environment in which the artifact will be used	Early in the design cycle

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Technique	Purpose	Stage of the Design Cycle
Role Playing, walkthroughs, And Simulations.	Evaluation of alternative designs and gaining Additional information about user needs and expectations; prototype evaluation.	Early and mid-point in the design cycle
Usability testing	Collecting quantities data related to measurable Usability criteria	Final stage of the design cycle
Interviews and questionnaires	Collecting qualitative data related to user satisfaction with the artifact	Final stage of the design cycle

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- A focus group involves encouraging an invited group of intended/actual users of a site to share their thoughts, feelings, attitudes and ideas on a certain subject. Organizing focus groups within an organization can also be very useful in getting buy-in to a project from within that company.

- Focus groups are most often used as an input to design.

- They generally produce non-statistical data and are a good means of getting information about a domain (e.g. what peoples' tasks involve).

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- Usability testing sessions evaluate a site by collecting data from people as they use it.

- A person is invited to attend a session in which they'll be asked to perform a series of tasks while a moderator takes note of any difficulties they encounter.

- Users can be asked to follow the think-aloud protocol which asks them to tell what they're doing and why they're doing it.

- You can also time users to see how long it takes them to complete tasks, which is a good measure of efficiency.

- Usability testing can be used as an input to design or at the end of a project.

- It represents an excellent way finding out what the most likely usability problems with a site are likely to be.

- Usability testing can be used generate non-statistical or statistical data.

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Card Sorting

- Card sorting is a method for suggesting intuitive structures/categories.

- A participant is presented with an unsorted pack of index cards.

- Each card has a statement written on it that relates to a page of the site.

- The participant is asked to sort these cards into groups and then to name these groups.

- The results of multiple individual sorts are then combined and analyzed statistically.

- Card sorting is usually used as an input to design.

- It's an excellent way of suggesting good categories for a site's content and deriving its information architecture.

- Card sorting can be used generate statistical data.

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Interviews

- An interview usually involves one interviewer speaking to one participant at a time.
- The advantages of an interview are that a participant's unique point of view can be explored in detail.
- It is also the case that any misunderstandings between the interviewer and the participant are likely to be quickly identified and addressed.
- The output of an interview is almost exclusively non-statistical - it's critical that reports of interviews are carefully analyzed by experienced practitioners.
- Interviews are usually employed early in the design process in order to gain a more detailed understanding of a domain/area of activity or specific requirements.

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Questionnaries

- Questionnaires are a means of asking users for their responses to a pre-defined set of questions and are a good way of generating statistical data.

- Questionnaires are usually employed when a design team can only gain remote access to users of a site and is seeking a larger sample size than can be realistically achieved through direct contact.

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Participatory Design

- Participatory design does not just ask users opinions on design issues, but actively involves them in the design and decision-making processes.

- Participatory design is usually used within a mini-project to generate prototypes that feed into an overall project's design process.

- An example would be a participatory design workshop in which developers, designers and users work together to design an initial prototype.

- This initial prototype would then feed into a more traditional design process.

- Projects which only utilize participatory design are very rare.

When to involve with the user?

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6.5. PERSONA AND SCENARIO

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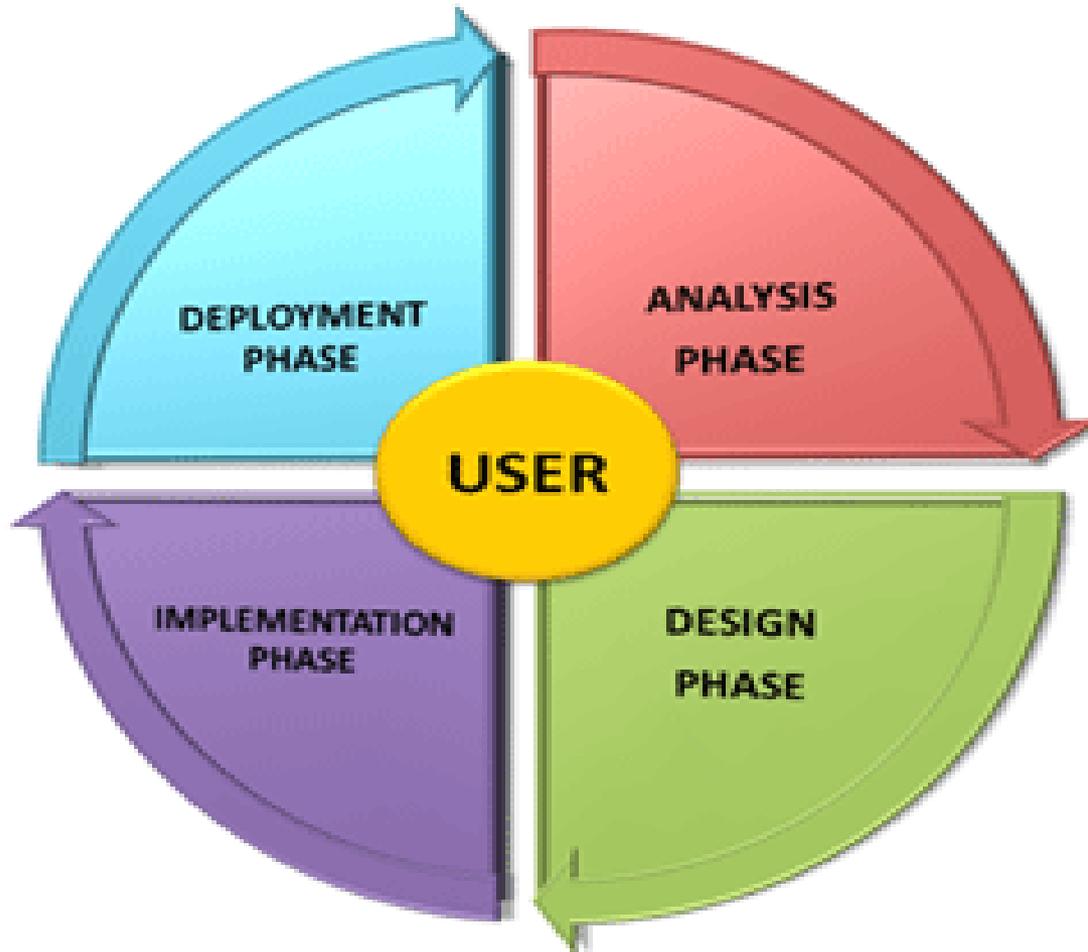
What is "persona"?

Personas are **concrete representations** of the **different types of people** that the system or service is being **designed for**.

- Personas should have a **name**, **some background** and, **importantly**, **some goals** and **aspirations**.

Simply it is a description of an 'example' user

- not necessarily a real person

use as surrogate user (substitute) who may do the better job

- what would "Betty" think

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Mrs. Silva is 37 years old, She has been Warehouse Manager for five years and worked for Demo Brothers Engineering for twelve years. She didn't go to university, but has studied in her evenings for a business diploma. She has two children aged 15 and 7 and does not like to work late. She did part of an introductory in-house computer course some years ago, but it was interrupted when she was promoted and could no longer afford to take the time. Her vision is perfect, but her right-hand movement is slightly restricted following an accident 3 years ago. She is enthusiastic about her work and is happy to delegate responsibility and take suggestions from her staff. However, she does feel threatened by the introduction of yet another new computer system (the third in her time at Demo).

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Example Persona

Sandy

- age 46
- drives a lot
- drinks and eats too much
- recently divorced
- children in early 20s
- had recent health scare (suspected heart attack which was actually angina)
- kids have bought him a HFC

Mari

- age 23
- aerobics instructor
- training seriously for first marathon
- her usual training partner has moved away
- she leads a wild social life and tends to burn the candle at both ends
- she's got a targeted schedule
- companion is very proactive in pace making and motivation

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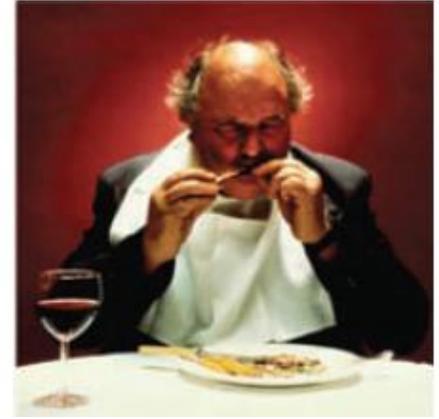
Persona – an Undergraduate at UCSC who uses VLE

Role

An Undergraduate at UCSC

Photograph

Fictional Name Ruvini Kaushalya

Age 22 years

Study Year: 2nd year student

Gender: Female

Educational background

Has done A/L in Mathematics stream, currently following BICT degree programme at UCSC

Goal

To upload an Assignment for Networking course module to the Learning Management System(LMS) of UCSC

Scenario

Ruvini completed the Networking assignment that their lecturer asked them to do and now she wants it to upload to the LMS.

Ruvini goes the LMS by clicking its link. There she enters her username and password in the login panel which is in the top right corner of the system. Then she clicks 'login' button. Then she is logged in to the system. Now her name is displayed on the top right corner. She then sees the list of courses that she is studying in the left side column of the page.

She clicks 'Networking' course and then she is redirected to the page relevant to the Networking course. In that page, under 'Topic 3' there is a link saying 'Upload the assignment'. As there are no other links like that, she clicks it. Then a form is displayed where she can upload her assignment. She uploads her word document to it and clicks 'Submit' button.

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Deep analysis of user

Designers need to recognize that they are not designing for themselves.

Designers create personas so that they can envisage who they are designing for.

They create personas so that they can put themselves in other people's shoes.

As any new system is likely to be used by different types of people, it is **important to develop several different personas**.

Such a diverse group of people have very different goals, and aspirations and differ in all manner of ways physically, psychologically and in terms of the usage they would make of the site.

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Persona template

PERSONA NAME,

"Persona categorization"

Narrative

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User Goals
Our persona wants to:

- Action 1
- Action 2
- Action 3
- Action 4

Our Business Objectives
We want our persona to:

- Action 1
- Action 2
- Action 3
- Action 4

Personal Information

Job: Lorem ispum
Location: Lorem ispum
Age: Lorem ispum
Status: Lorem ispum
Hobbies: Lorem ispum

Domain Information

Lorem ipsum: Lorem ispum
Lorem ipsum: Lorem ispum

Internet /IT

Experience: Lorem ispum
Service usage: Lorem ispum
Favorites : Lorem ispum

Delighters

« Lorem ispum »

Frustrations & Pain Points

« Lorem ispum »

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What are Scenarios?

Scenarios are stories about people undertaking activities in contexts using technologies.

Scenarios are **stories for design**: rich stories of interaction.stories for design.

They appear in a variety of forms throughout interactive systems design and are a key component of many approaches to design.

Scenarios have been used in software engineering, interactive systems design and human–computer interaction work for many years.

More recently scenario-based design has emerged as an important approach to the design of interactive systems

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Scenarios can be used to:

- **communicate with others** - other designers, clients or users.
- **understand dynamics** - Individual screen shots and pictures give you a sense of what a system would look like, but not how it behaves.
- **validate the models for design** - A detailed scenario can be 'played' against various more formal representations

Scenarios are linear – they represent a single path amongst all the potential interactions.

- **Time is linear** - our lives are linear as we live in time and so we find it easier to understand simple linear narratives.
- **But hardly show alternatives** - A simple scenario does not show these alternative paths.

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step-by-step walkthrough

- what can they see (sketches, screen shots)
- what do they do (keyboard, mouse etc.)
- what are they thinking?

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linearity

Scenarios – one linear path through system

Pros:
- life and time are linear
- easy to understand (stories and narrative are natural)
- concrete (errors less likely)

Cons:
- no choice, no branches, no special conditions
- miss the unintended

So:
- use several scenarios
- use several methods

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Brian would like to see the new film "Moments of Significance" and wants to invite Alison, but he knows she doesn't like "arty" films. He decides to take a look at it to see if she would like it and so connects to one of the movie sharing networks. He uses his work machine as it has a higher bandwidth connection, but feels a bit guilty. He knows he will be getting an illegal copy of the film, but decides it is OK as he is intending to go to the cinema to watch it. After it downloads to his machine he takes out his new personal movie player. He presses the 'menu' button and on the small LCD screen he scrolls using the arrow keys to 'bluetooth connect' and presses the select button. On his computer the movie download program now has an icon showing that it has recognised a compatible device and he drags the icon of the film over the icon for the player. On the player the LCD screen says "downloading now", a percent done indicator and small whirling icon. … … …

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Sandy

- age 46
- drives a lot
- drinks and eats too much
- recently divorced
- children in early 20s
- had recent health scare (suspected heart attack which was actually angina)
- kids have bought him a HFC

1. We meet Sandy in a hospital room, he's being visited by his kids.
2. They are worried about his health, he does little exercise and since his wife left him his diet has become appalling.
3. They give him a HFC (what is this?!) which will combine with his current home system. They explain that it's intended to help raise his general level of fitness, monitor his health and set and maintain a healthy balanced diet.
4. They all leave the hospital and Sandy starts the configuration.
5. Being ex-army Sandy decides that a tough-love drill instructor personality would suit him best (he's on board with the fact that he needs to get healthy), so he selects Alf, a non-nonsense archetype companion character.
6. He opens his exercise regime to be accessible by his children, on their request, as he feels this will be an added incentive for him to exercise.
7. Configuration involved biometrics such as weight, height etc, allowing Alf to suggest appropriate training and diet.
8. It's aim is to understand whether the owner is in bad condition needing to get better, wanting to maintain current health or aim for high performance.
9. Alf reprimands bad behaviour (such as buying unhealthy food) nags when he doesn't exercise, but offers positive motivation when he does.

Mari

– age 23
– aerobics instructor
– training seriously for first marathon
– her usual training partner has moved away
– she leads a wild social life and tends to burn the candle at both ends
– she's got a targeted schedule
– companion is very proactive in pace making and motivation

1. She's set up a long-term schedule with her HFC to enable her to run her first marathon in under 4 hours.
2. This includes target goals such as what times she should be running long distances by which stage of the regime.
3. The HFC adapts to maintain the regime when Mari's social circumstance impacts her ability to train.
4. If she runs too far or too fast the companion will advise that this may have a negative impact on her training and may result in potential injury.
5. Explicit instructions in real time run ('ok, now we're gonna push hard for 2 minutes….ok, well done, let's take it easy for the next 5….etc.')
6. The HFC has access to her social schedule (through social companion?) and suggests going to a party the night before a long run may not be a great idea.
7. At the actual marathon her HFC becomes a motivating force and gives her real-time advice (eg, 'there's a hill coming up, pace yourself', it knows this from a run plug-in she bought for the HFC).
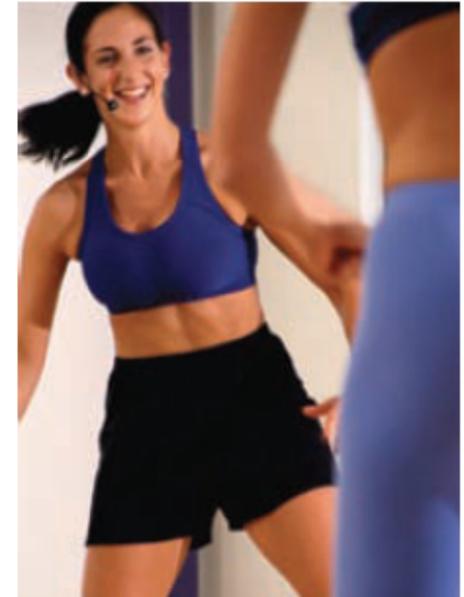
Bjorn

- Age 32
- Office worker (ad account manager)
- No children, lives alone
- Dog died (used to walk it for exercise)
- Starting to put on weight
- Used to play football at university, much less active now
- Active social life
- 'I want to stay fit, but on my own time and fitting in to my own schedule'

1. Home from work, he was meant to go out the previous evening but got invited out to a dinner party instead. This evening is now free, so he decides to go for a run.
2. He's in his living room and sets up for his run. This involves:
   - route choice
   - exercise level, eg easy jog or hard run (specific pacing feedback choice, eg within PB)
   - music choice
   - disturbability status (eg, open to contact/running partner)
   - weather
   - (warm up/stretching?)
3. He gets changed and leaves the house, the handover is transparent from living room companion to mobile device-based companion and is aware of all Bjorn's choices regarding run setup.
4. Just as he's about to begin, the sun breaks through the clouds and Bjorn decides he'd rather go for a longer run than initially selected in his living room; this change must be facilitated through his mobile companion device. Selective rather than creative process (eg, chose run three on route 2).
5. He starts running hard.
6. Asked whether he's warmed up as he's running above a warm-up rate.
7. He slows down to a more gentle jog and reaches his start point.
8. A touch of the device indicates he's starting his run.
9. Music begins.
10. Pace-setting tactile feedback begins.
11. Midway through run he's informed that Julie is also running in the woods and has set her HFC at open to running partners (this is a closed list of the pre-set social network that Bjorn belongs to).
12. He slows down and runs on the spot and sends her a greeting, asking if she'd like to join him; she says yes
13. She catches up and the companion automatically reconfigures his pacing settings to match hers.
14. After a circuit they part ways and Bjorn heads home.
15. On entering the house Bjorn warms down and stretches which induces a brief summary on his mobile device whilst the detailed data from his run is transparently transferred to his home network.
16. He walks into the kitchen to grab a glass of water and plan what to make for dinner. His home companion notes that he went for a long run today so he must be hungry, and suggests some recipes based on what he has in his fridge: 'how about the steak, it goes out of date tomorrow'. Nothing takes his fancy so he asks the companion to search online whilst he has a shower. Takes shower, comes down and is presented with some new recipes and the fact that Julie called and asked him for a drink that night.
17. At a later time he asks for an overview of his past three months' exercise. His companion notes that his heart rate is recovering quicker which suggests he's getting fitter, but for the past two weeks he's not been running for as long.

Joan — Fish and Wildlife Researcher

Role	**PRIMARY USER**
Age	58
Home	Alpena, MI
Data Sources	Self Collected Sensor Data
Tools	Weka, R, SAS

Analysis of Tool Usage

Frequency of Use — Low / High

Expertise — Low / High

Feature Utilization — Low / High

Her Goals

1. To find any data analysis application that is capable in accepting any research data she has as input; either online (big data) or local data
2. To find a data analysis application that gives user option to set parameters in its analysis
3. To use data analysis features according to her need
4. To view visualization from result of analysis
5. To evaluate whether the application could be used as a tool in her daily work, especially in handling big data

Time per Task

- Data Selection — 10%
- Data Processing — 25%
- Data Transformation — 15%
- Data Analysis — 10%
- Interpretation & Evaluation — 40%

Backgrounds

Joan is a fish and wildlife researcher in US. Her responsibilities include analyzing the data collected from sensors positioned in strategic habitat conservation initiatives. (Region 3: Great Lakes, Big Rivers). She also does peer review of research performed by fellow wildlife researchers.

Once in a while she would search for new tools to help her in work, especially for analyzing data. With the trend of big data and her position as a researcher, she is searching for a tool that could help her in handling "big data" and the usual data in her work

Research Impact

The research done by Joan needs to have an impact, because the result of the research could help her to direct funding to areas most in need. Meanwhile the peer review ensures integrity of her department findings and programs.

Scenarios

- Joan finds about h2o from her friends. They told Joan to try it as it offers more data control and faster data analysis. Joan found it as a potential data analysis tool.
- Joan explore more about h2o on the website. She decides to try and run it by following the instruction on the website
- Joan runs the h2o and follows the tutorial for doing simple data analysis using iris dataset
- After some exploration, she finds hViewO, a frontend visualization application recommended on h2o website.
- Joan runs the web application and reads the features explained on the homepage. After that, she decides to try the application
- Joan selects parsed iris dataset, then she sets random forest parameters randomly and run the analysis
- Joan gets the result of analysis, confusion matrix, and the visualization. She then evaluates whether the result meets her need
- Joan runs the h2o and the application again with different data to check if the application provides similar results with her previous works
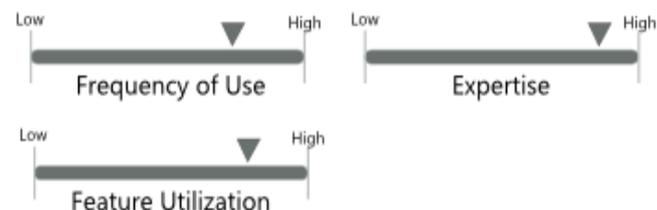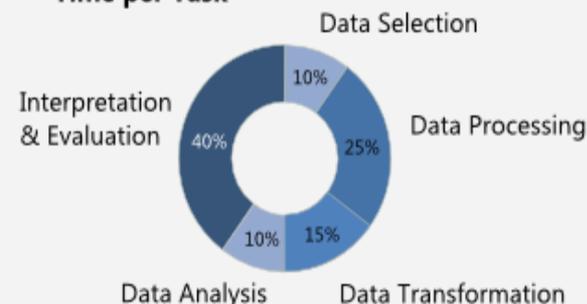
Developing Personas and Scenarios

- In order to guide the design process, designers need to think about the **PACT elements.**

- The people who will use the system are represented by personas; profiles of the different types, or archetypes, of people the designer is designing for.

- Activities and the contexts in which they will occur are envisioned through scenarios of use.

- Different <u>concrete scenarios</u> can be used to envision <u>how different technologies</u> could function to achieve the overall purpose of the system.

- Personas and scenarios are developed through the understanding process and through **undertaking a PACT analysis.**

- Almost inevitably personas and scenarios evolve together as thinking about people involves thinking about what they want to do, and thinking about activities involves thinking about who will be undertaking them!

Prof. K. P. Hewagamage   User Interface Design (UID)

Use scenarios to explore the depths

explore interaction
- what happens when

explore cognition
- what are the users thinking

explore architecture
- what is happening inside

communicate with others
- designers, clients, users

validate other models
- 'play' it against other models

express dynamics
- screenshots – appearance
- scenario – behaviour

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Using Scenarios throughout design

- Scenarios (and their associated personas) are a core technique for interactive systems design.

- They are useful in understanding, envisioning, evaluation, and both conceptual and physical design: the four key stages of interactive system design

- We distinguish four different types of scenario: stories, conceptual scenarios, concrete scenarios and use cases.

- Stories are the real-world experiences of people.

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Using Scenarios throughout …

- Conceptual scenarios are more abstract descriptions in which some details have been stripped away.

- Concrete scenarios are generated from abstract scenarios by adding specific design decisions and technologies and once completed these can be represented as use cases.

- Use cases are formal descriptions that can be given to programmers.

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