User Adaptive Intelligent Systems

Introduction

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Objectives

- Understand the importance of personalisation
- Familiarise with the nuances of personalisation

Why Do We Need Personalisation?

- **Available information**
  - Abundance
  - Heterogeneity
  - Noise
  - Constraints (bandwidth, time)

- **People**
  - Capabilities and background
  - Task, goal, intentions
  - Context
  - Affective states

Two Types of Personalisation

Adaptable (customisable) systems

User is able to modify aspects of **S**ystem to suit his/her own preferences

Adaptive systems

+ machine intelligence!

S modifies its own behavior at least partly independently of specifications by **U**

Intermediate cases

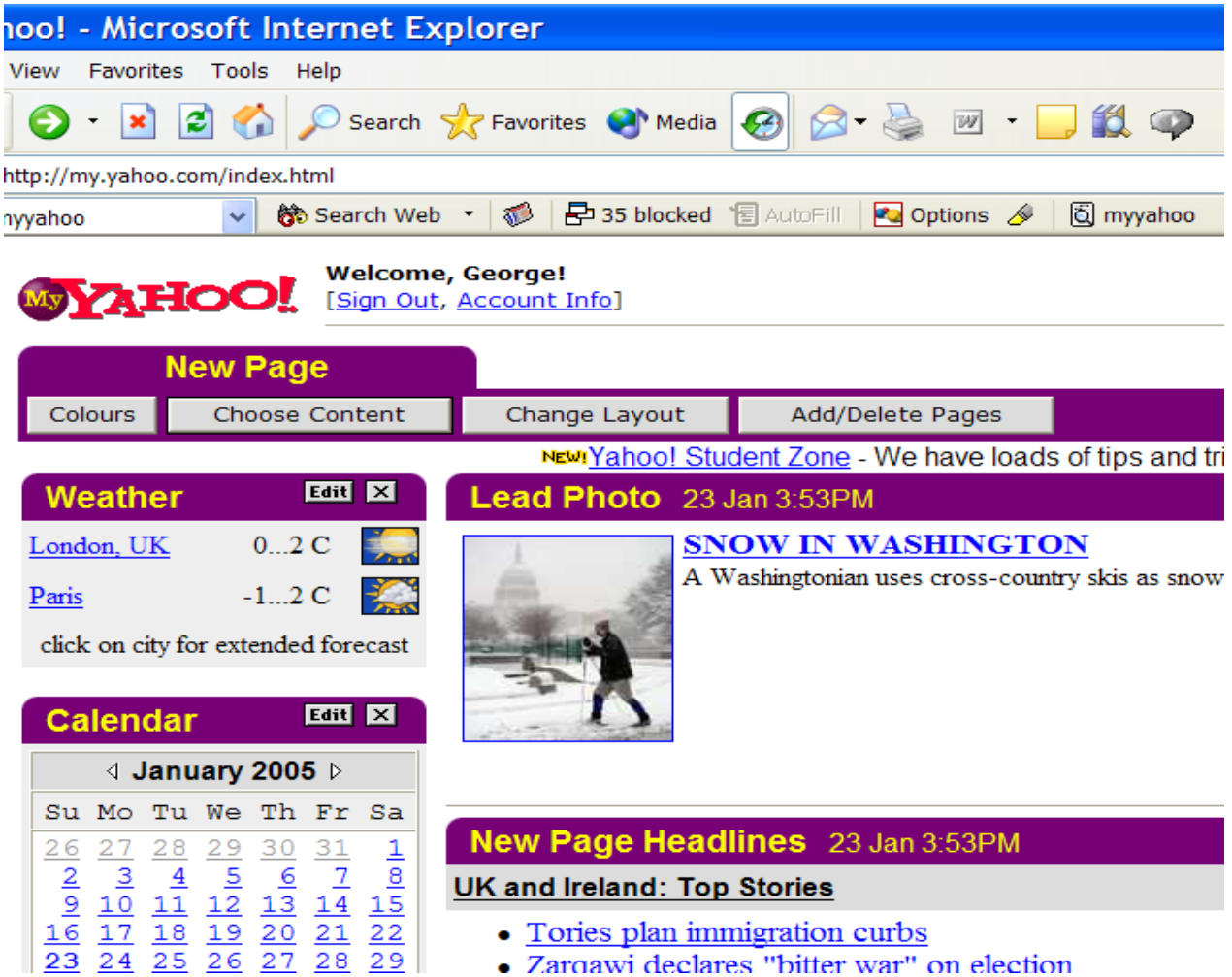
S proposes possible adaptations, **U** decides which ones to accept

… still needs machine intelligence but less automation

Example: User-ADAPTABLE Interface

Customise your web browser

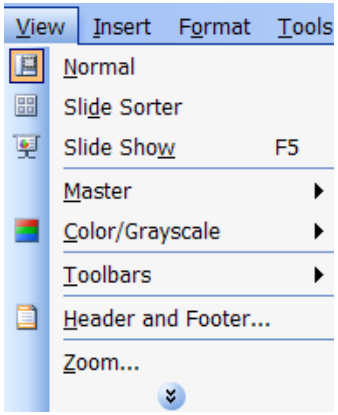
my.yahoo.com

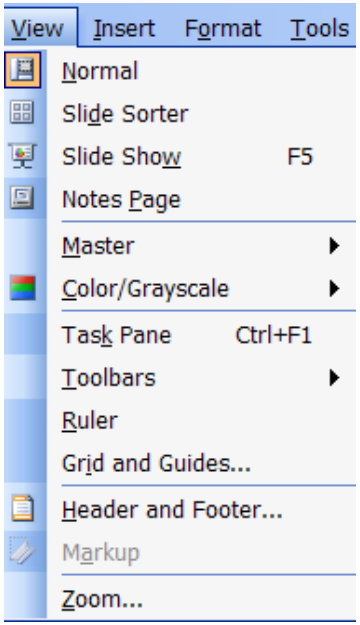


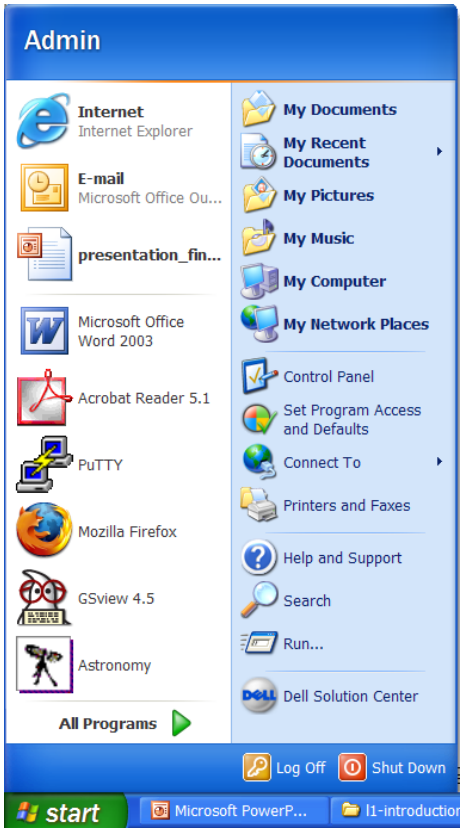
Example: User-ADAPTIVE Interface

Smart menus

MS Windows







SELF-STUDY

Familiarise with Recent Examples

- Travel assistant MoCoMapps (IBM)

- Personalised E-Coach (University of Michigan)

Watch the videos on Minerva to familiarise with these systems

MoCoMapps: Geo-crowdsourced personalised travel app (IBM)

SELF-STUDY

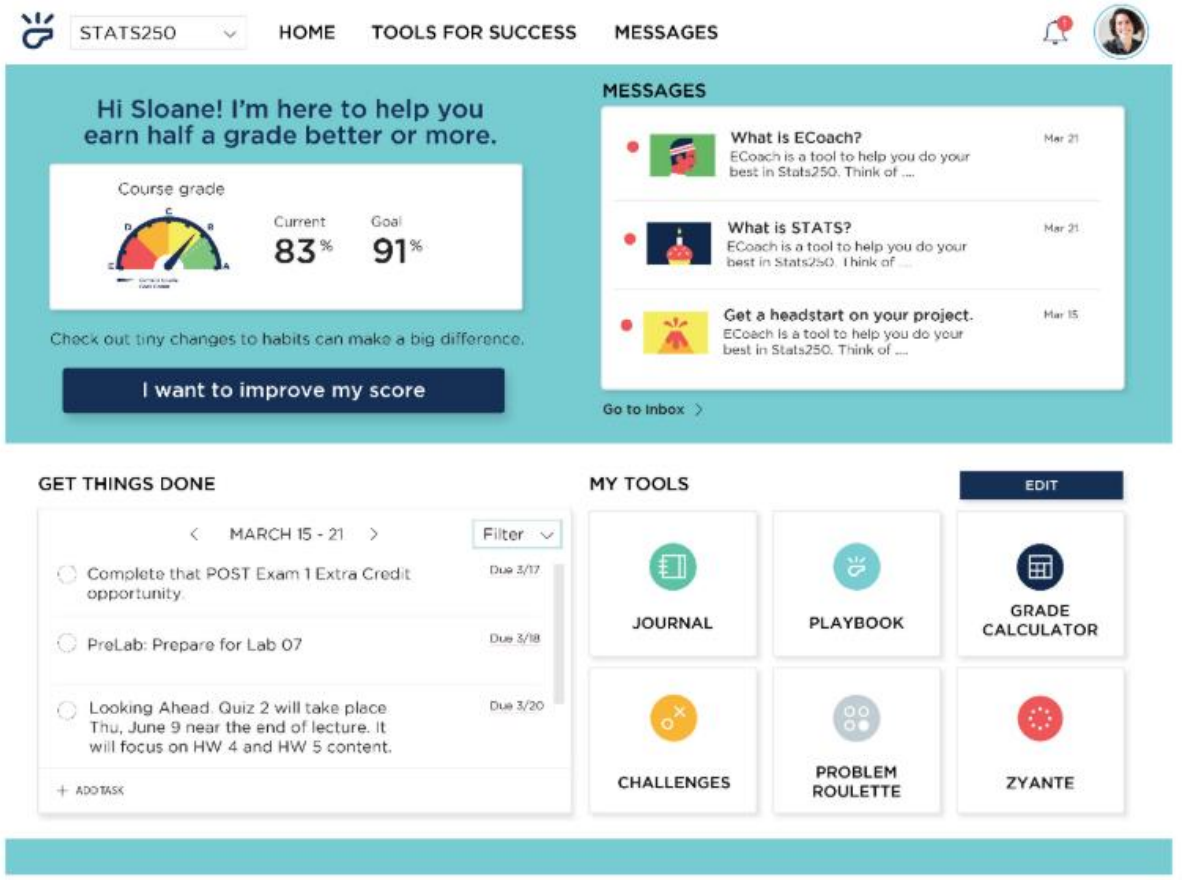
- Customisable interface for indicating user interests
- Registering notable points (e.g. bike racks)
- Presents a location map adapted to the user's interests

Watch the video about MoCoMapps (available from Minerva)

ECoach: Personalised Coach for University Students (Univ of Michigan)

SELF-STUDY

- Customisable interface for indicating the learner's goals and personal values
- Psychometric test to identify the learner's self-regulation and motivation for studies
- Link to the university student information system
- Adaptive reminders & feedback
- Recommendation for learning and wellbeing activities



Read the ECoach blog and listen to the podcast (from Minerva)

Examples you have Come Across

– What is known about the ‘user’

– What is being adapted?

– Whose intelligence – machine or human or both?

Check examples from other students on Padlet:
https://universityofleeds.padlet.org/vgdimitrova/6czsuplhjrqosvd
Password: user-adaptive

Syllabus - ‘Module Content’ [Minerva]

- General Schema of User-adaptive Systems
- User Model Representation and Building
- Recommender Systems
- Adaptive Content Presentation
- Evaluation of User-adaptive Systems
- Responsible Personalisation

- Emerging topics

Supporting Resources

- **Reading & Exercises**
  - Papers available in Minerva
  - Exercises / questions embedded in lectures (follow-through again in self study time)

- **Minerva**
  - Lecture notes; reading materials

- **External sources:**
  - **User Modelling Inc**. (http://www.um.org/)
  - **Use Modelling and User-Adapted Interaction** journal (http://www.umuai.org/)
  - **User Modelling, Adaptation and Personalisation** (UMAP) conferences
  - **Recommender Systems** (RecSys) conferences

Expected Engagement

- attend weekly online lectures (Tuesdays, 15:50-16:35and 16:40-17:25)
- familiarise with material provided for each topic
- engage in discussions on module topics
- complete the formative assessment quizzes
- complete in course summative assessment
- prepare for the terminal assessment

Assessment

Assessment type	% of overall module assessment	Submission date (coursework)	Submission mechanism
Coursework 1 Recommender system prototype [report]	30%	17 Nov 2022	Gradescope
Coursework 2 Responsible personalisation [online test]	10%	8 Dec 2022	Gradescope
Terminal assessment	60%		In person

Summary

- Personalisation is ubiquitous nowadays
- Two main drivers:
  - Information
  - People
- Two types of personalisation:
  - User-adaptable systems (customisation)
  - User-adaptive systems (machine intelligence)