

Information Search and Retrieval
Exam Projects

Academic Year: 2010-2011



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Project



- ❑ The project is conducted in **small groups** (2 students)
- ❑ **Design** an information search and advisory system in a given application scenario (e.g. bikes, courses, events, ski, eGovernment, group travel, etc.)
- ❑ **Choose** the topic and scenario you like the best
- ❑ The project results include:
 - a written **report** approximately 5.000 words
 - and **optionally** a system **prototype**
- ❑ The **report** must describe the proposed system and should be targeted to the **IS provider**
- ❑ It is not required to fully implement the proposed **system**, just focus on the core functionality and provide a user interface for it.

Structure of the report



- ❑ Executive **summary**
- ❑ Description of the **application problem**
- ❑ **Survey** of existing information search applications and studies on the chosen application domain (**read and quote** at least **3-4 specific papers**)
- ❑ Critical **evaluation/comparison** of the pros and cons of the **techniques** presented in the course, and that you may have found, that could be applied to the selected problem
- ❑ Description of the **proposed system functions**
- ❑ Description of the **core techniques** used in the prototype and how have been applied to this specific example
- ❑ **Advantages for the customer.**

How the project will be evaluated



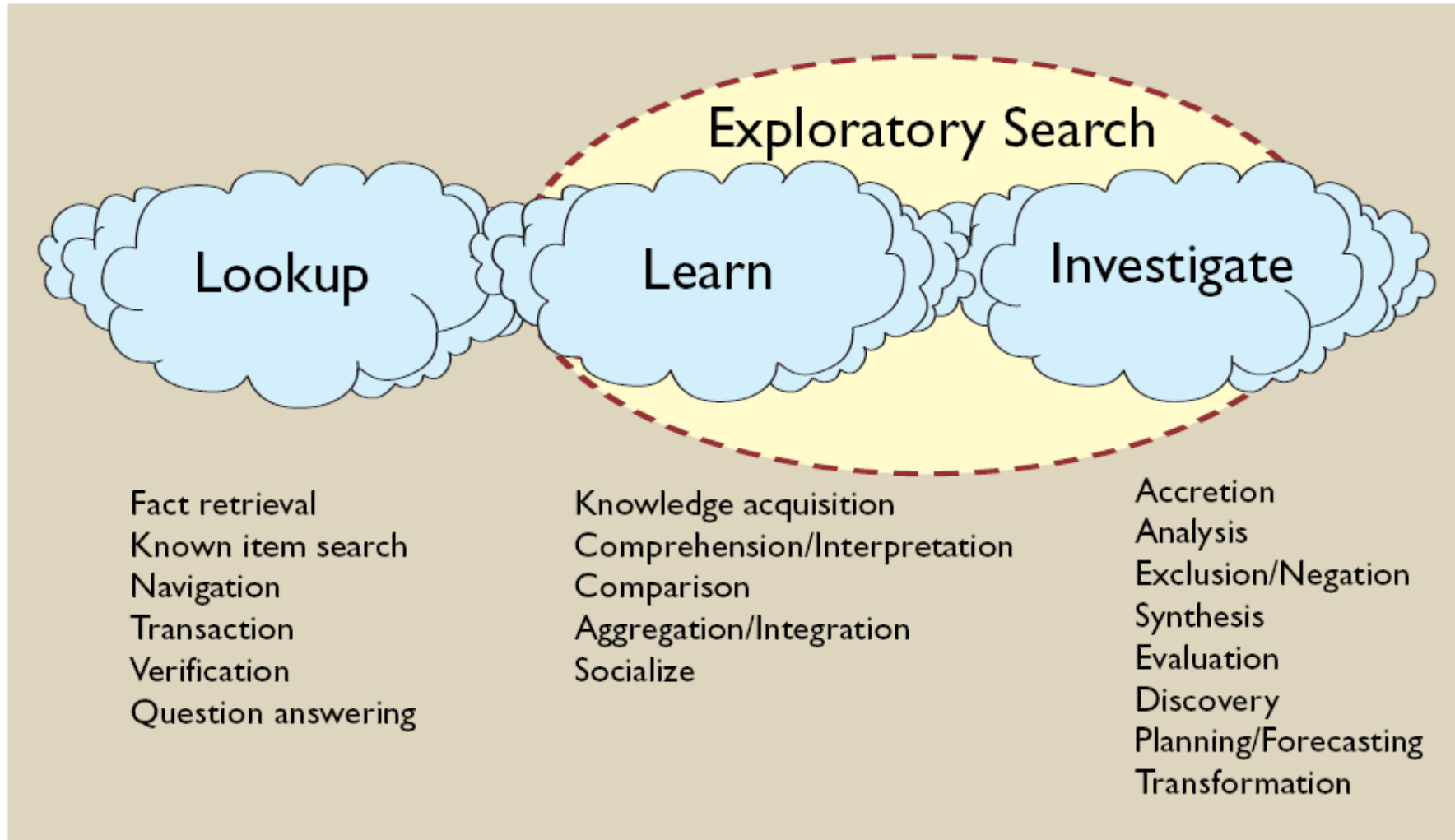
- ❑ The report **must follow the defined structure** (see a previous slide)
- ❑ The report must be **clearly written**
- ❑ The proposed functions and techniques must be **significant** and **sound**
- ❑ The report must show that you have **deeply investigated** the problem and you can **convince** the client
- ❑ The **system** idea should be enough developed to show some of the potential benefits for the users
- ❑ The presentation must be **understandable and raise the audience attention**
- ❑ The presenters must be **able to reply** to the questions of the other participants.



System Functions

- ❑ Identify some system functions (3/4)
- ❑ Each system function should support a specific type of user need
- ❑ Consider the needs categorized in the next slide in:
lookup, learn, investigate
- ❑ Selects a small subset of these needs and identify for each of them the technique and interface for supporting that
- ❑ *For instance*
 - **Learn-Comparison**
 - A comparison tool for different interpretations (CDs) of the same music composition (e.g. Ravel's string quartet).

Exploratory Search



[Marchionini, 2006]

Group Rec for music or movies

- ❑ People often listen to music or watch movies in groups
- ❑ Support the search for music (movie) that is relevant for a group of user
- ❑ The situation when the music will be listened is relevant (e.g., at home, in a party, in a car, etc.)
- ❑ Literature
 - G. Adomavicius and, A. Tuzhilin. Context-Aware Recommender Systems. In *Recommender Systems Handbook*, 217–256. Springer Verlag, 2011.
 - A. Jameson and B. Smyth. Recommendation to groups. In *The Adaptive Web*, 596–627, 2007.
 - L. Baltrunas, T. Makcinskis, and F. Ricci. Group recommendations with rank aggregation and collaborative filtering. In *RecSys '10: Proceedings of the 2010 ACM conference on Recommender Systems*, 119–126, 2010.

Searching Mobile Applications

- People often search for new mobile applications on their phones
- Suggest mobile applications that can be relevant for the user and for the specific situation
- Literature
 - G. Adomavicius and, A. Tuzhilin. Context-Aware Recommender Systems. In *Recommender Systems Handbook*, 217–256. Springer Verlag, 2011.
 - Christoffer Davidsson and Simon Moritz. 2011. Utilizing implicit feedback and context to recommend mobile applications from first use. In *Proceedings of the 2011 Workshop on Context-awareness in Retrieval and Recommendation (CaRR '11)*. ACM, New York, NY, USA, 19-22.
 - W. Woerndl, C. Schueller, R. Wojtech, A Hybrid Recommender System for Context-aware Recommendations of Mobile Applications, *Data Engineering Workshop, 2007 IEEE 23rd International Conference on* , vol., no., pp.871-878, 17-20 April 2007.

Museum Information Systems

- ❑ Offer search functionalities for preparing the visit to a museum and supporting the visit
- ❑ Before the visit: understanding what is shown and help to select exhibits to visit
- ❑ During the visit: routing, explanations, socializing, replanning
- ❑ Literature
 - Methods and Applications for Ontology-Based Recommender Systems
Doctoral Dissertation, Tuukka Ruotsalo lib.tkk.fi/Diss/2010/isbn9789526031514/isbn9789526031514.pdf
 - Alabastro, P.; Ang, M.; de Guzman, R.; Muhi, M.; Suarez, M.; ,
"MyMuseum: Integrating personalized recommendation and multimedia for enriched human-system interaction," (*IDC*), pp. 421-426, 16-18 Aug. 2010
 - Cataldo Musto, Fedelucio Narducci, Pasquale Lops, Marco de Gemmis, Giovanni Semeraro: Integrating a Content-Based Recommender System into Digital Libraries for Cultural Heritage. *IRCDL 2010*: 27-38

Itinerary Suggestion

- Suggest a tourist itinerary in a city – a selection of places of interest and a routing
- Adapt the suggestions and the search results depending on the user preferences and the particular situation
- Literature
 - L. Baltrunas, B. Ludwig, S. Peer & F. Ricci, Context Relevance Assessment and Exploitation in Mobile Recommender Systems, to appear in *Personal and Ubiquitous Computing*, 2011
 - Ander García, María Teresa Linaza, Olatz Arbelaitz, Pieter Vansteenwegen: Intelligent Routing System for a Personalised Electronic Tourist Guide. *ENTER 2009*: 185-197
 - Cena, F.; Console, L.; Gena, C.; Goy, A.; Levi, G.; Modeo, S.; and Torre, I. 2006. Integrating heterogeneous adaptation techniques to build a flexible and usable mobile tourist guide. *AI Communication* 19(4):369–384.

Mobile Search

- ❑ A generic tool for supporting ad hoc information search while the user is mobile
- ❑ Possibly make it more specific (real estate, shopping, cultural events, ...)
- ❑ Literature
 - F. Ricci. Mobile Recommender Systems, *International Journal of Information Technology and Tourism*. 12(3), 2011.
 - Karen Church and Barry Smyth. 2009. Understanding the intent behind mobile information needs. In *Proceedings of the 14th international conference on Intelligent user interfaces (IUI '09)*. ACM, New York, NY, USA, 247-256.
 - Karen Church, Barry Smyth, Keith Bradley, and Paul Cotter. 2008. A large scale study of European mobile search behaviour. In *Proceedings of the 10th international conference on Human computer interaction with mobile devices and services (MobileHCI '08)*. ACM, New York, NY, USA, 13-22.

Music Recommendations

- ❑ Selecting a playlist for a user – music tracks and a specific ordering of playing
- ❑ Searching music content using several types of input and needs (look at the slide “Exploratory Search”)
- ❑ Literature
 - Oscar Celma. Foafing the music: Bridging the semantic gap in music recommendation. In *The Semantic Web - ISWC 2006*, pages 927–934. Springer Berlin / Heidelberg, 2006.
 - Z. Cataltepe and B. Altinel. Music recommendation based on adaptive feature and user grouping. In *Computer and information sciences*, 2007. iscis 2007. 22nd international symposium on, pages 1–6, 2007.
 - Yoshii, K., Goto, M., Komatani, K., Ogata, T., and Okuno, H. G. (2008). An efficient hybrid music recommender system using an incrementally trainable probabilistic generative model. *IEEE Transaction on Audio Speech and Language Processing*, 16(2):435–447.