User requirements

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Outline

Context and environment

- XLIM-SIC laboratory of Poitiers University.
- Researching for new feature matching and indexing solutions for image retrieval and analysis.
- Life CLEF contest 2015.
  - CLEF = Cross Language Evaluation Forum
  - International contest for image retrieval

Project goal

- Develop a software program for image retrieval.
  - Embedding a new color texture feature
- Compare the obtained performances (CLEF challenge).
- Relevant in our skill developments inside the training
  - Image processing, computer sciences, classification and statistics
- Many educational topics related to this project.
  - Project management, time constraints, deliverables, . . .

Scope of work

- Design a software program for image retrieval in database.
- Adapt the last up to date designed color texture attributes (vectorial construction).
- Compare last research results in color texture analysis in front of the Big-Data challenge.

Stakeholders

- Customer : Thierry Urruty.
- People involved in the project : Thomas Le Bris, Gaëtan Adier, Ibrahima Gueye, Etienne Caillaud, David Helbert, Noël Richard.
- End users : Economical structures in charge of large image database (Flicker, Google, CIBDI Angouleme, Eïnden...).

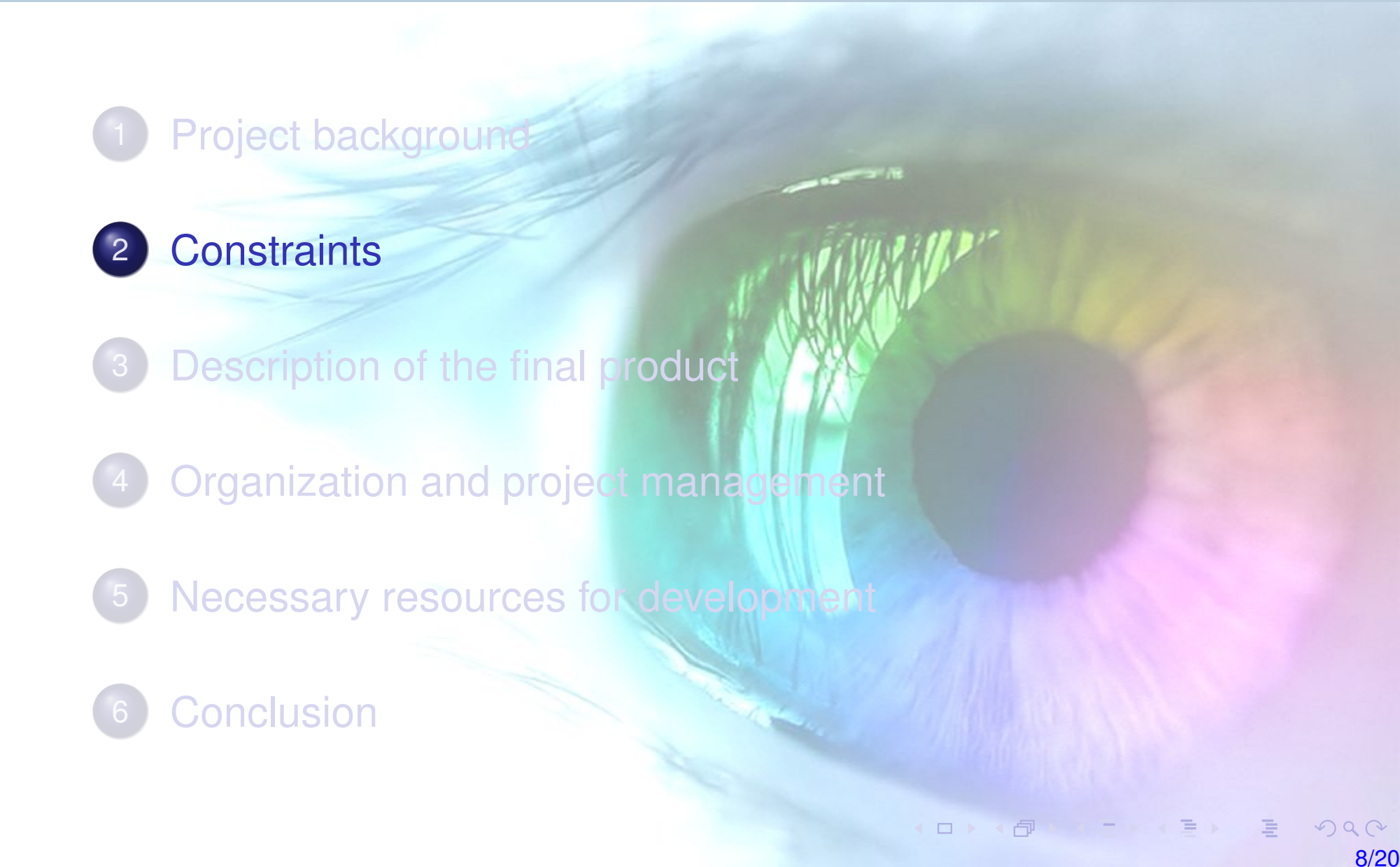
State of the art

- CLEF $\rightarrow$ international competition between
  - University laboratories
  - Societies : IBM
- Automatic extraction of key-points (KP)
  - Salient key-point
  - Dense grid
- Texture or local information $\forall$ KP
  - SIFT or/and SURF are the most used
  - C_2O being to compare

State of the art

- chosen approach as reference
  - FINKI : top ten of lifeCLEF 2014.
  - Multiscale triangular shape or opponent SIFT
- Challenge metrics from CLEF
  - Mean of the average classification rate.

Outline



Deadlines

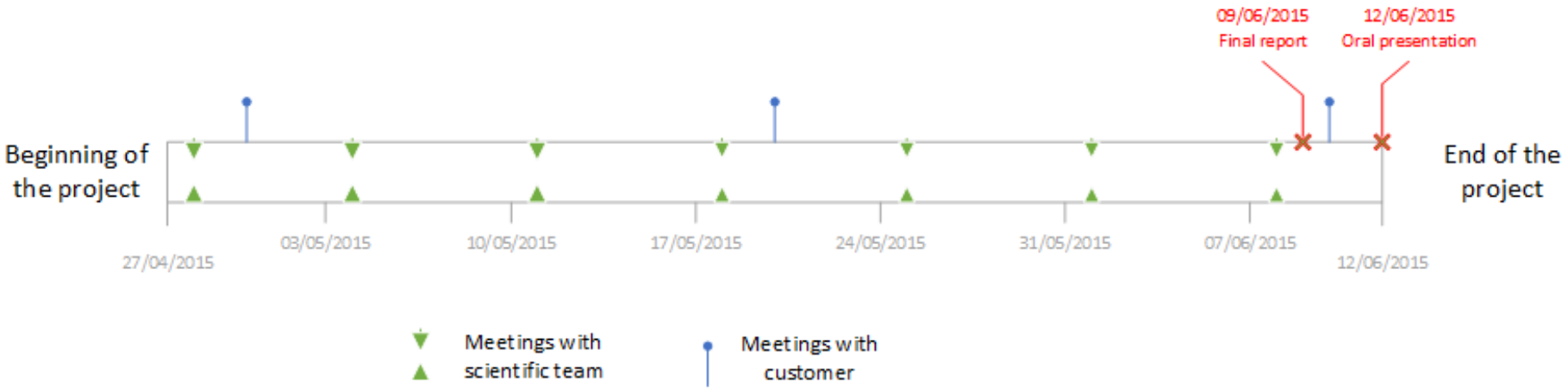


FIGURE: Gantt chart

- SCRUM meetings every morning.

Outline

Software

- Software program able to calculate texture features for one image (argument of the executable file).
  - Texture feature computation
  - Image retrieval process using the CLEF databases
  - Performance metrics from CLEF
- For each image
  - Create one directory for each image.
  - One text file with all the information about the image
    - From the CLEF database.
  - One text file per descriptor/feature. One information per line

Performance comparison

- Compare our results with the other laboratories.
  - From the previous CLEF challenge
  - Using CLEF challenge metrics
- Produce an analysis of the obtained performances
  - Using the classical color texture features
  - Using the new color texture feature proposed by XLIM-SIC
- Produce a technical report allowing to continue this project and the CLEF contest

Outline

Schedule

ID	Task Name	Start	Finish	Duration
1	**Writing the state of the art**	27/04/2015	01/05/2015	1w
2	**Learning the use of HULK calculator**	27/04/2015	01/05/2015	1w
3	**Preparing the database**	**01/05/2015**	**15/05/2015**	**2w 1d**
4	Constitution of database structure	01/05/2015	04/05/2015	2d
5	Calculation of SIFT discriptors	04/05/2015	15/05/2015	2w
6	**Programming**	**08/05/2015**	**08/06/2015**	**4w 2d**
7	Programming CLP descriptor calculation	08/05/2015	29/05/2015	3w 1d
8	Programming the distance calculation function	18/05/2015	29/05/2015	2w
9	Writing of the technical documentation	08/05/2015	08/06/2015	4w 2d
10	Calculation of CLP descriptors	29/05/2015	03/06/2015	4d
11	Compare result using CLEF metrics	04/06/2015	08/06/2015	3d
12	**Writing of the report**	**27/04/2015**	**08/06/2015**	**6w 1d**
13	Writing of the technical report	27/04/2015	01/06/2015	5w 1d
14	Writing of the final educational report	02/06/2015	08/06/2015	1w
15	**Preparation of the oral presentation**	09/06/2015	15/06/2015	1w

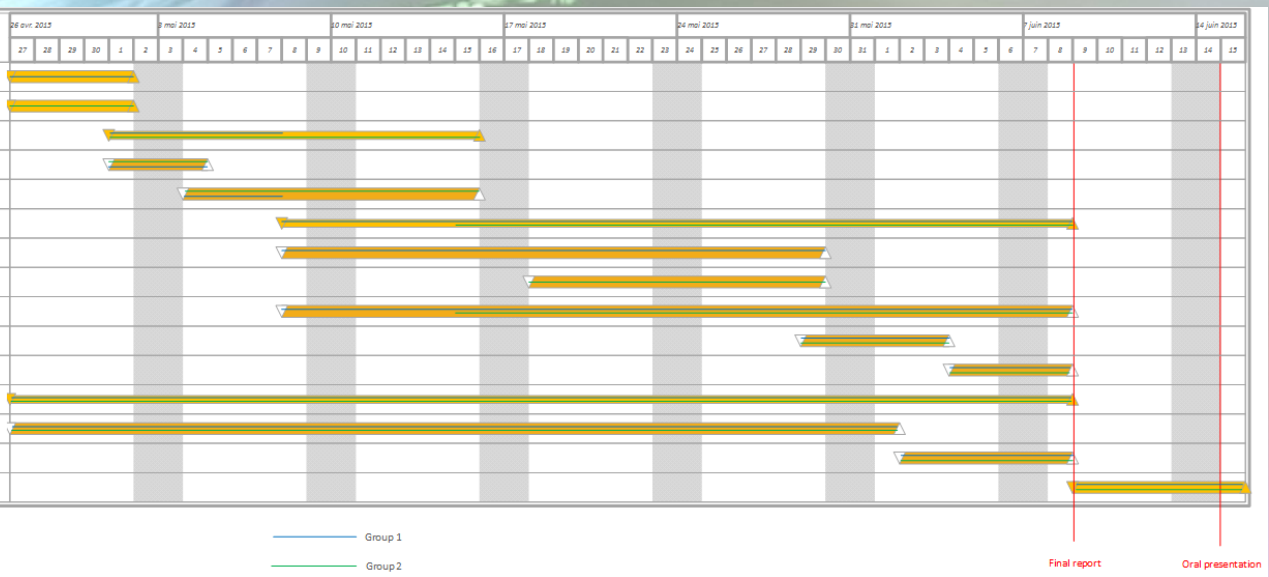


FIGURE: Gantt chart

Location

- Project classrooms (ON03/01/17) in SP2MI building.

Outline

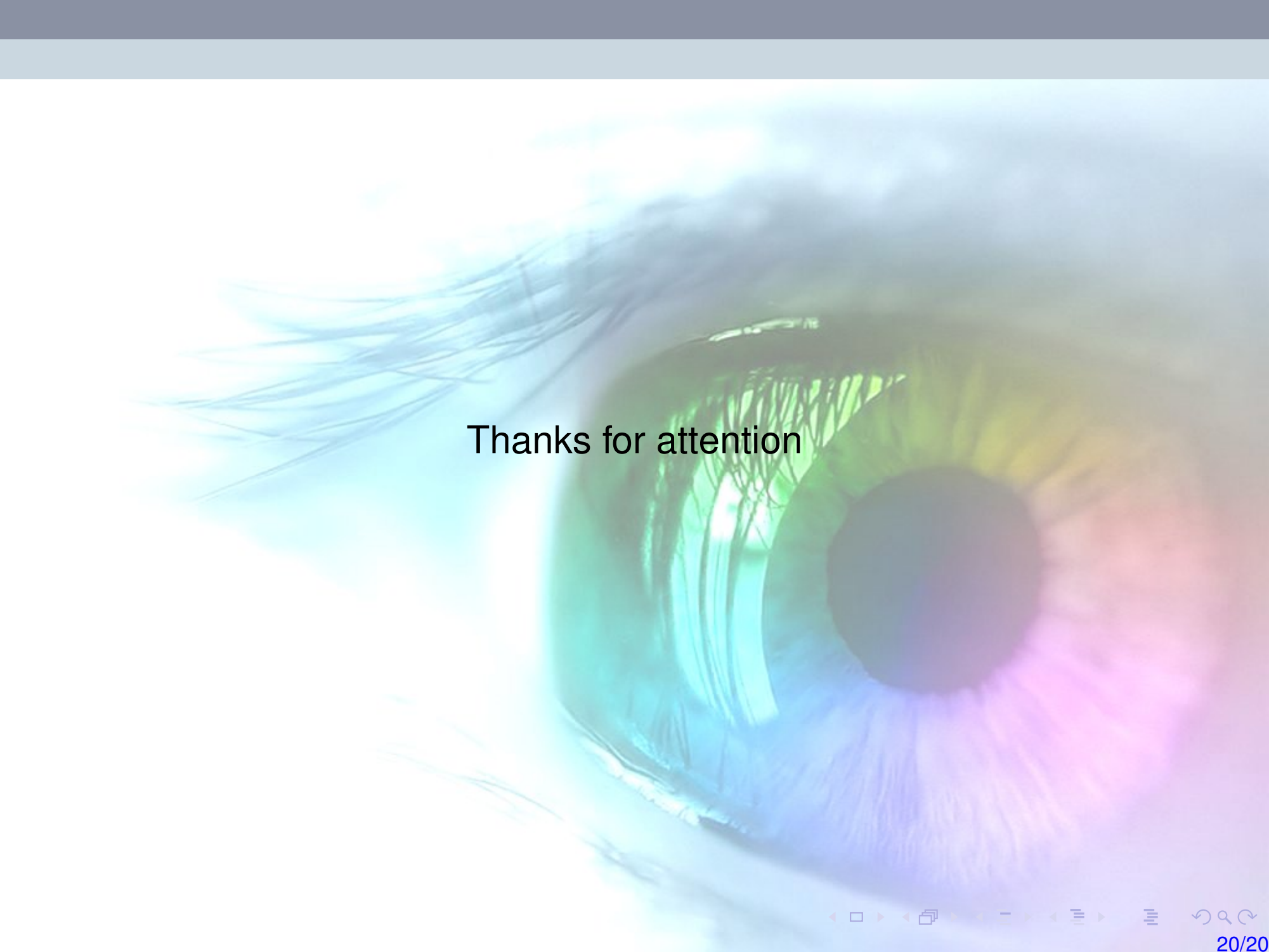
Resources

- Connection to computing university server.
- Computers with Python edition tools.
- Electrical outlets and internet access.

Outline

Conclusion

- Using programming and image processing on new subject.
- Experience in project management.
- Opportunity to participate in a contest.


Thanks for attention