

*Innovation and Knowledge Management towards  
eStudent Information System – iKnow*

# **Enrolment and Migration Module**

progress report

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# Admission/enrolment process

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The main purpose of every admission/enrolment process is to:

## **Direct**

- Acknowledge that the prospective candidates do comply with the internal/external policy/rules/laws for specific study program enrolment
- Select the candidates who, (in its judgment,) will make the best students and become valuable professionals.

## **Indirect**

- Plan the resources needed for the education process according to the interests of the future students
- Record statistical data collected from the prospective students in order to use it in future management / educational / other decisions.

Transfer the data of the enrolled candidates into the core module

# Objective

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The objective of this project is **to design a web-based system that will support the university enrolment process** (on-line university admission system).

The intent of the system is to:

- Exchange information about results
- Provide grading system and selection methodology
- Realize electronic registration and application
- Realize complete pro-active customized feedback
- Reports to university management, statistical office and Ministry of Education

The main objective of this project is to design a system that will automate the task carried out by different persons in the organization and performing the student admission process.

# General overview

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- The system is intended to be used by the
  - prospective students (candidates for university enrolment),
  - the admission officers,
  - the support personnel (at the university and departments/faculties level),
  - other government institutions (State Statistical Office, Ministry of Education).
- Business logic rules should easily be configurable without changes to the application source.
- The system should have an intuitive and effective WEB based interface
- Fast access to context dependent on-line help.

# Existing System(s)

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- The process of admission of new students at the public universities is regulated by the government (especially in the part of maximum number of students allowed to be enrolled on particular study programs and the scholarship).
- This regulation also prescribes
  - the documents candidates should provide,
  - the dates the documents are to be submitted to the University/Faculty admission office,
  - by which date the results must be published by the University/Faculty
  - the process of filling a complain by the candidates.

# Constraints

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- In general, in a single admission period a candidate can apply for a place on one Faculty only. However, the faculties often allow the candidates to apply on several study programs at the faculty in which case the candidate must appoint precedence.
- Most of the documents and certificates required from the candidates exist only in paper form.

# Challenges

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- Different business rules for prerequisites on different study programs (different graduation exam subjects, additional medical record, additional exam required by some) – mostly regulated by faculties
- Different business rules for ranking of 'special' candidates (nationality, social status, ...) – regulated by the government
- Calculation of points for ranking is different depending on the type of graduation of the candidate
- Different rules for admission of candidates on the second & third cycle of studies
- For the candidates that have taken the state graduation exam, most of the required data for their high school and graduation marks exist in digital form. A web service that will import this data from the MoES database is to be developed

# Expected Benefits

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- **Reach to geographically scattered students**
- **Reducing time in activities** (process the applications of students, admitting a student, conducting the online examination, verify student marks, and send call letters to selected students)
- **Centralized data handling**
- **Paperless admission** with reduced manpower
- **Cost cutting**
- **Operational efficiency** (improve the quality of the process)



# Goals

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- Manage large number of candidate details
- Create candidate accounts and maintain candidate's data in an effective way
- View all the details of the students
- Create statistical reports
- Enable the candidates to take proactive role in the process by entering their data in the system
- Provide the candidates with updates of the current status of the enrolment process

# Basic functionalities

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- Registration and Login System
- Application form filling & submitting
- Checking prerequisites
- Ranking the candidates
- Production of the preliminary / final list of accepted / rejected candidates
- Filling a complain form / revision / resolution & reporting
- Produce various statistical reports
- Online Counseling & help

# Types of users

ID	User groups	Roles
AD	Administrator	<ul style="list-style-type: none"> <li>• Manages all Faculty/study program data specifics of the enrolment process</li> <li>• Create and manage user accounts for other user groups</li> <li>• Manages all setup data</li> <li>• Create and manage courses, privileges and enrolment to those courses</li> </ul>
EC	Enrolment Committee	<ul style="list-style-type: none"> <li>• Conducts the admission process</li> <li>• Monitor and supervise the admission process carried out by Faculty / Study programme admission officers</li> <li>• Views and analyse comments</li> <li>• Analyses statuses and response times</li> <li>• Analyses quality of service provided</li> <li>• Views reports about FAQ</li> <li>• Issues reports to the University management</li> <li>• Issues reports to media / MoES</li> </ul>
AO	Admission officer	<ul style="list-style-type: none"> <li>• Receives and reviews complaints</li> <li>• Sends answers</li> <li>• Prepares preliminary and admission lists</li> <li>• Edits FAQ</li> </ul>
SP	Supporting personnel	<ul style="list-style-type: none"> <li>• Receives the forms and other documents/certificates from the applicants (in paper form)</li> <li>• Checks if all requested documents are provided and the forms are properly filled and signed</li> <li>• Keeps records of all received documents</li> <li>• Enters data from the paper only applications (received by mail, special cases, translated documents, etc.) in the system</li> </ul>
ME	Ministry of Education	<ul style="list-style-type: none"> <li>• View various statistical reports for applied / admitted candidates</li> </ul>
SO	State Statistical Office	<ul style="list-style-type: none"> <li>• View various statistical reports for applied / admitted candidates</li> </ul>

ID	User groups	Roles
AP	Applicant / prospective student	<ul style="list-style-type: none"> <li>• Registers to the system</li> <li>• Inputs personal details, fills application</li> <li>• Fills details from his/her certificates (academic scores)</li> <li>• Submits / prints application</li> <li>• Views FQA</li> <li>• Fills complain request</li> <li>• View results</li> </ul>
TA	Technical Administrator	<ul style="list-style-type: none"> <li>• Manages the software parameters</li> <li>• Create and manage user accounts for other user groups</li> </ul>
UA	University Administration Office members	<ul style="list-style-type: none"> <li>• Views and analyse reports and data</li> <li>• Analyses statuses and response times</li> <li>• Analyses quality of service provided</li> <li>• Views reports about FAQ</li> <li>• Issues reports to the University management</li> <li>• Issues reports to media / Ministry of Education</li> <li>• Conducts the enrolment process</li> <li>• Monitor and supervise the process carried out by Faculty / Study programme</li> <li>• Manage the student and staff accounts using standard LDAP schemas</li> <li>• Enable and revoke privileges</li> <li>• Work in the office for communications with students</li> <li>• Provide administrative services for students</li> <li>• Manage students data</li> <li>• Coordinate work with faculty members and provide services</li> </ul>
RA	Resource administrators	<ul style="list-style-type: none"> <li>• Define access to their resources using standard LDAP schemas</li> </ul>
UC	University computing centre	<ul style="list-style-type: none"> <li>• Maintain and monitor the infrastructure</li> <li>• Provide hosting for the AAI services for institution with smaller members</li> <li>• Maintain the users/resource database (LDAP and associated services)</li> <li>• Maintain the identities of the users (identity providers)</li> </ul>

# Functionalities

ID	Functionality	Description	Objective
1	Creating / managing accounts	The administrator should have opportunity to create and manage accounts for the other user groups (except applicants)	To create and manage the accounts for the other persons from the university involved in the enrolment process
2	Manage master data	The administrator should have opportunity to manage the master data used in the form filling process (list of municipalities, list of schools, ...)	To manage the data that can appear in the application forms in an organized way
3	Manage study programmes, prerequisites and admission quotas	The administrator should have opportunity to manage the study programmes, prerequisites and admission quotas for every study programme	The admission quotas, accredited study programmes, dispersed study groups, prerequisites can change frequently
4	Manage points calculation, ranking and precedence rules	The administrator should have opportunity to manage: the way the points awarded to applicants are being calculated; the ranking rules; and precedence rules	Point calculation, additional assessment exams, interviews should be recorded. In case of multiple choice for study program selection (where allowed) certain precedence rules should be applied
5	Initiating enrolment process	Enables the administrator to initiate the process that starts with candidates registration and finishes with enrolment/rejection	Most of the other activities can be performed only while the enrolment is active
6	Applicant registration	Applicants register on the system by entering their e-mail. After the account activation the user can use the system	Applicants can register on the system before and during the application submission period
7	Filling application form	Applicants can enter all data requested by the application form in a web based interface and save them. Data includes all high school marks and graduation exam marks.	The applicant can recheck and correct the entered data before the final application submission.

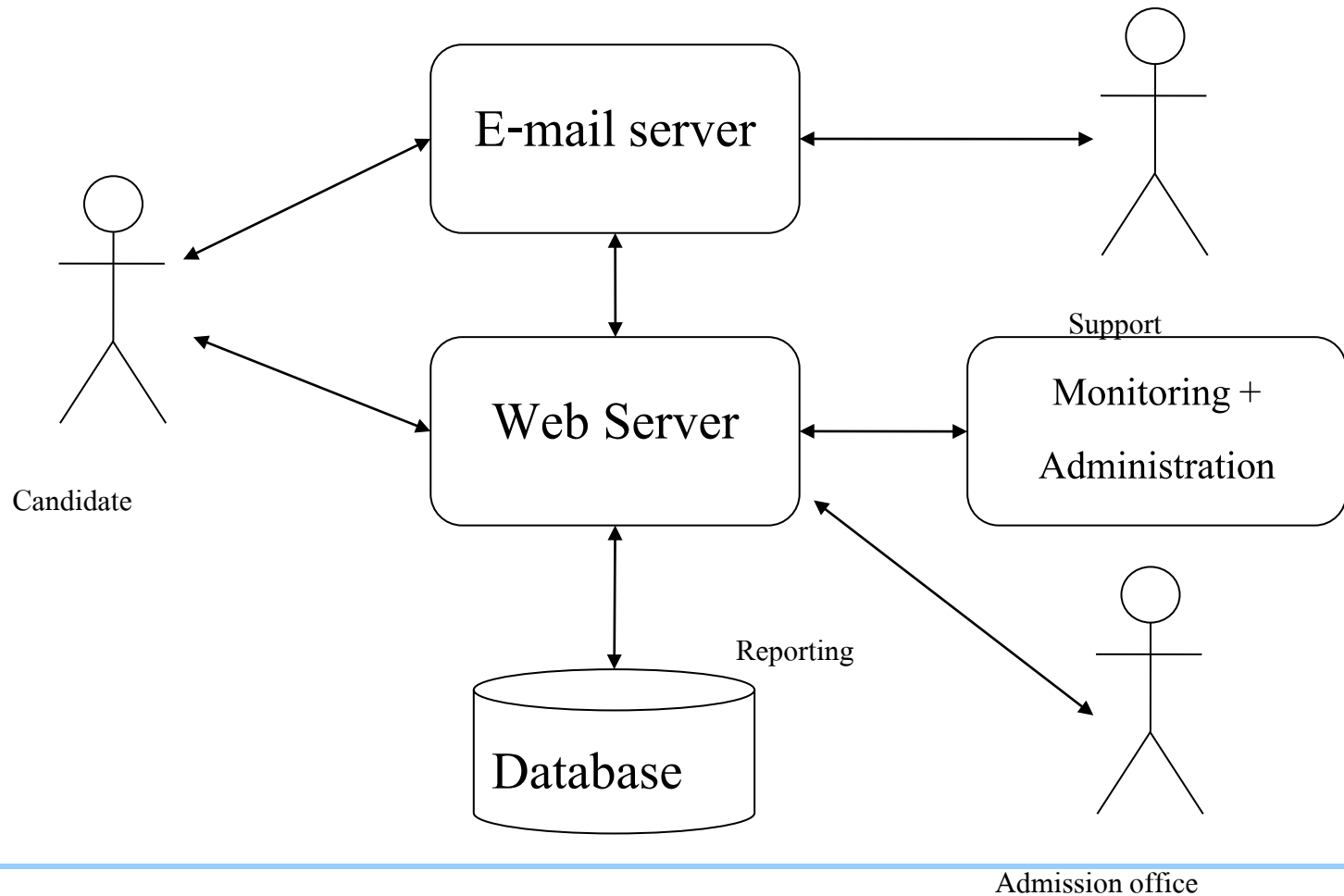
# Functionalities

ID	Functionality	Description	Objective
8	Submitting the application	Applicants should print out a reference form with generated unique ID that is supposed to be submitted with the originals of the requested document and certificates to the admission office	The admission officer can view and check the consistency of the data entered by the applicant to the original documents. The data entered is later used in the ranking process.
9	Viewing preliminary results	Applicants can view the list of all candidates that applied for the same study programme	
10	Fill a complain form / request a revision	A candidate should be able to raise a complain about an error in his/her data as published	To allow the candidate to request correction of mistakes or revision of his academic/exam results by the admission commission
11	Edit application form	Editing one applicants form in order to correct mistakes	Enables the officer to correct a mistake in the candidate application
12	Entering additional information in the application form	The system should enable entering of additional data in the application like results of additional exam	To enter data from additional exams
13	Ranking the candidates	The system should be able to automatically rank all the candidates for every study programme	To produce list of accepted and rejected candidates
14	Close the submission process and produce the list of candidates that have applied	The system should be able to produce the list of applied candidates	Publication of results

# Functionalities

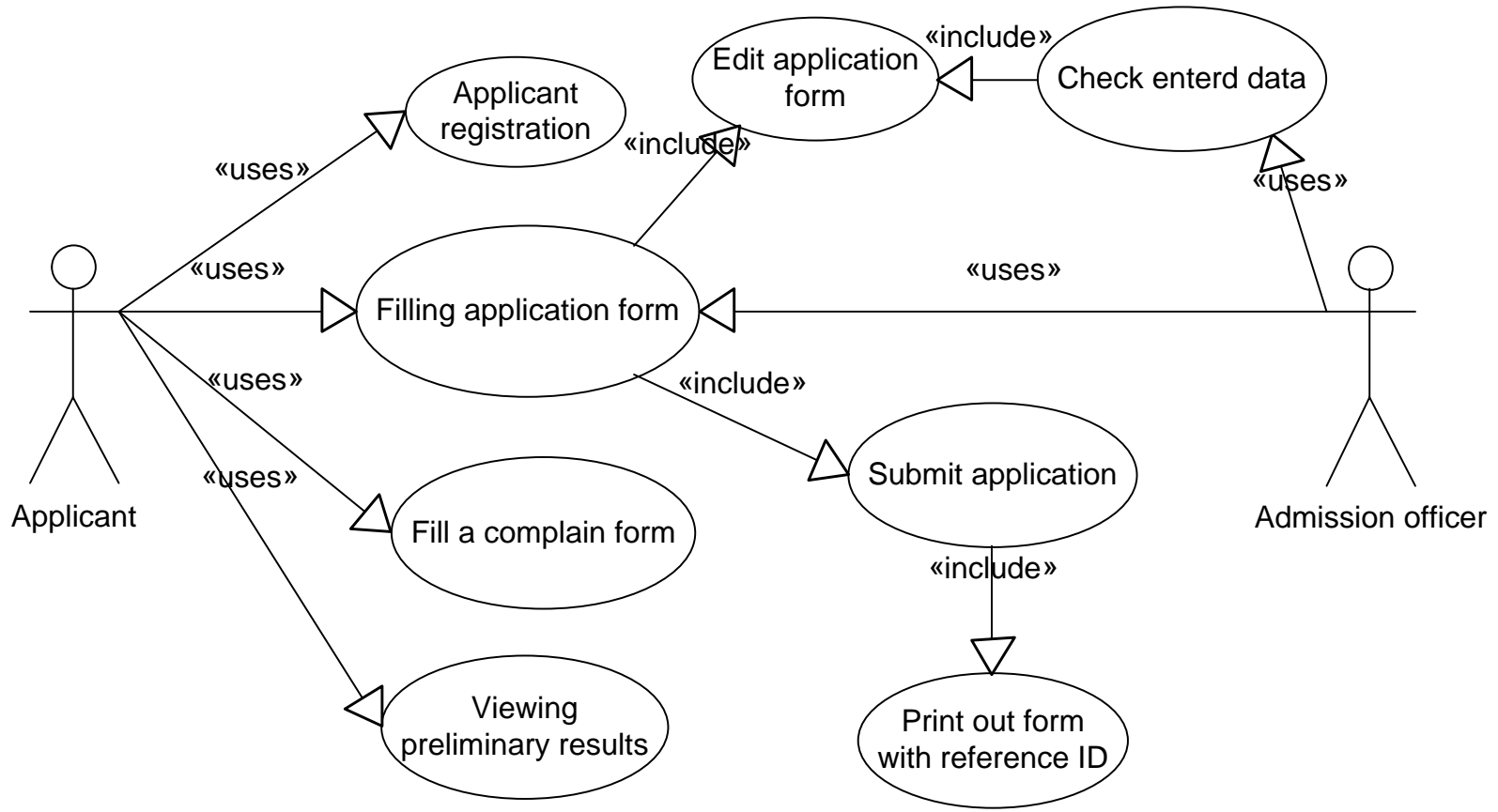
ID	Functionality	Description	Objective
15	Production of the preliminary list of accepted and rejected candidates	The system should be able to produce the preliminary list of accepted and rejected candidates	Publication of results
16	Production of the final list of accepted candidates	The system should be able to produce the final list of accepted and rejected candidates	Publication of results
17	Produce various statistical reports for applied / admitted candidates	The system should produce various statistical reports for all candidates that have applied, for the accepted and rejected ones	Statistics reports
18	Online Counselling		Providing on-line help
19	Audit log	The system should keep audit log with time stamp and user ID for all changes to the student application record once the application has been submitted	

# Global system diagram

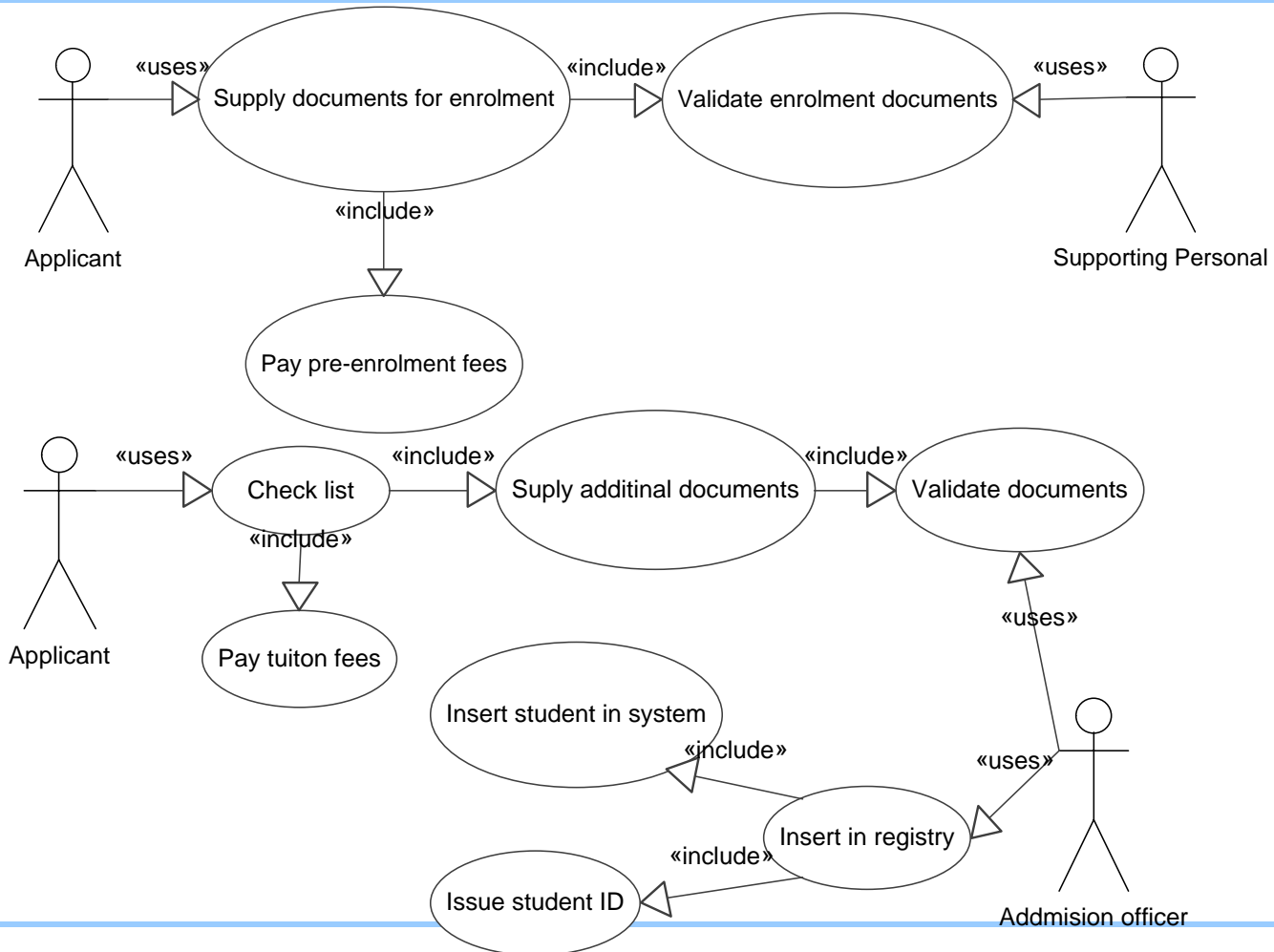




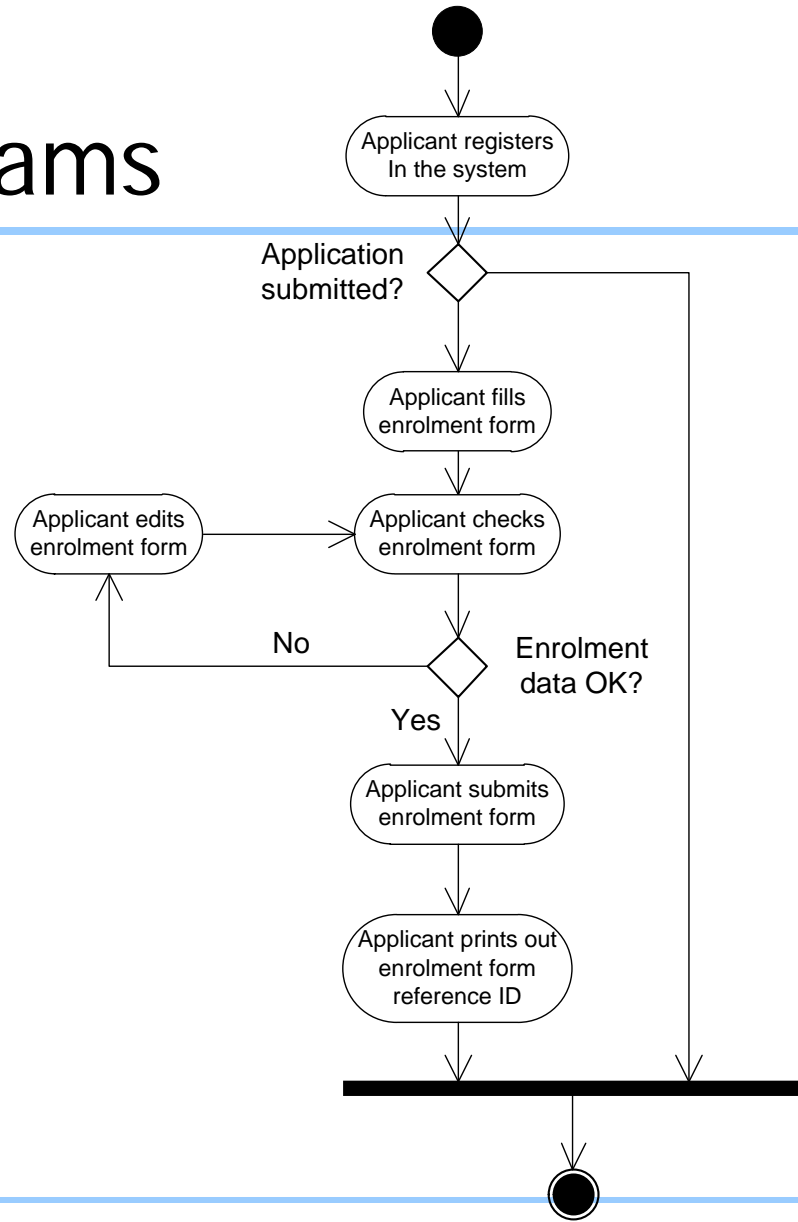
# Enrolment system use-case (1)



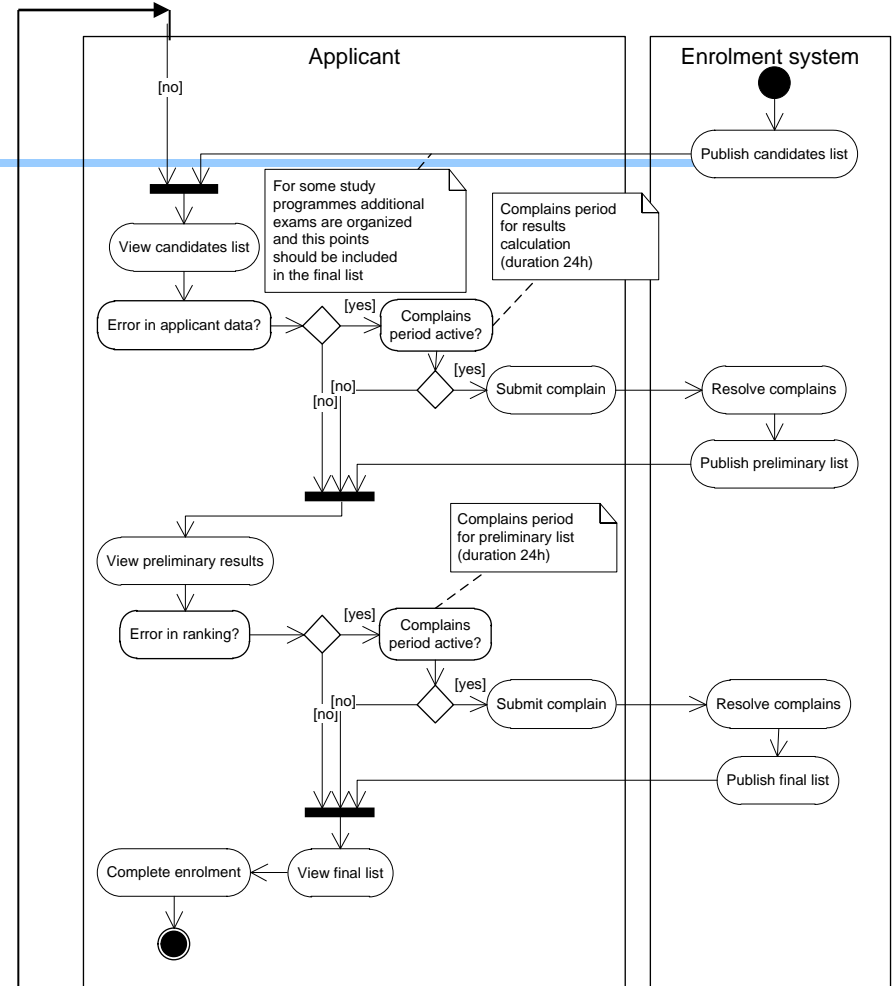
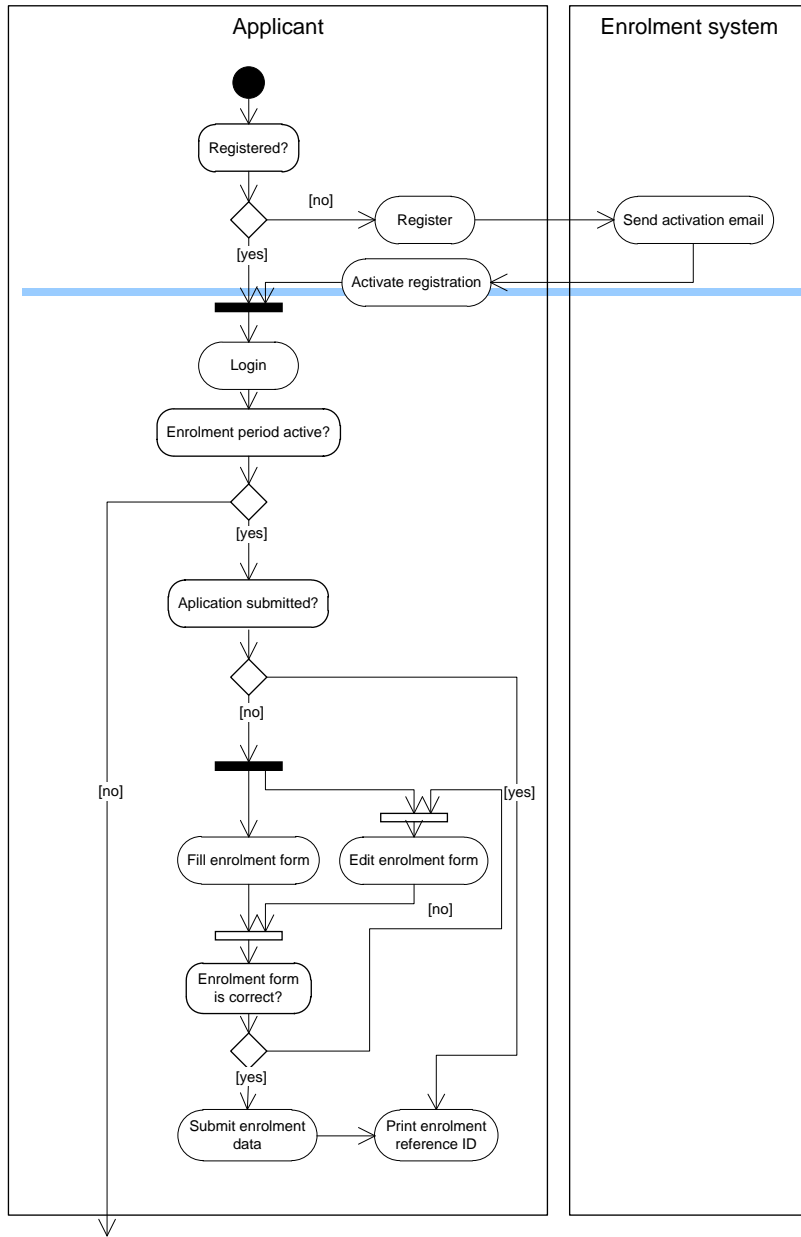
# Enrolment system use-case (2)



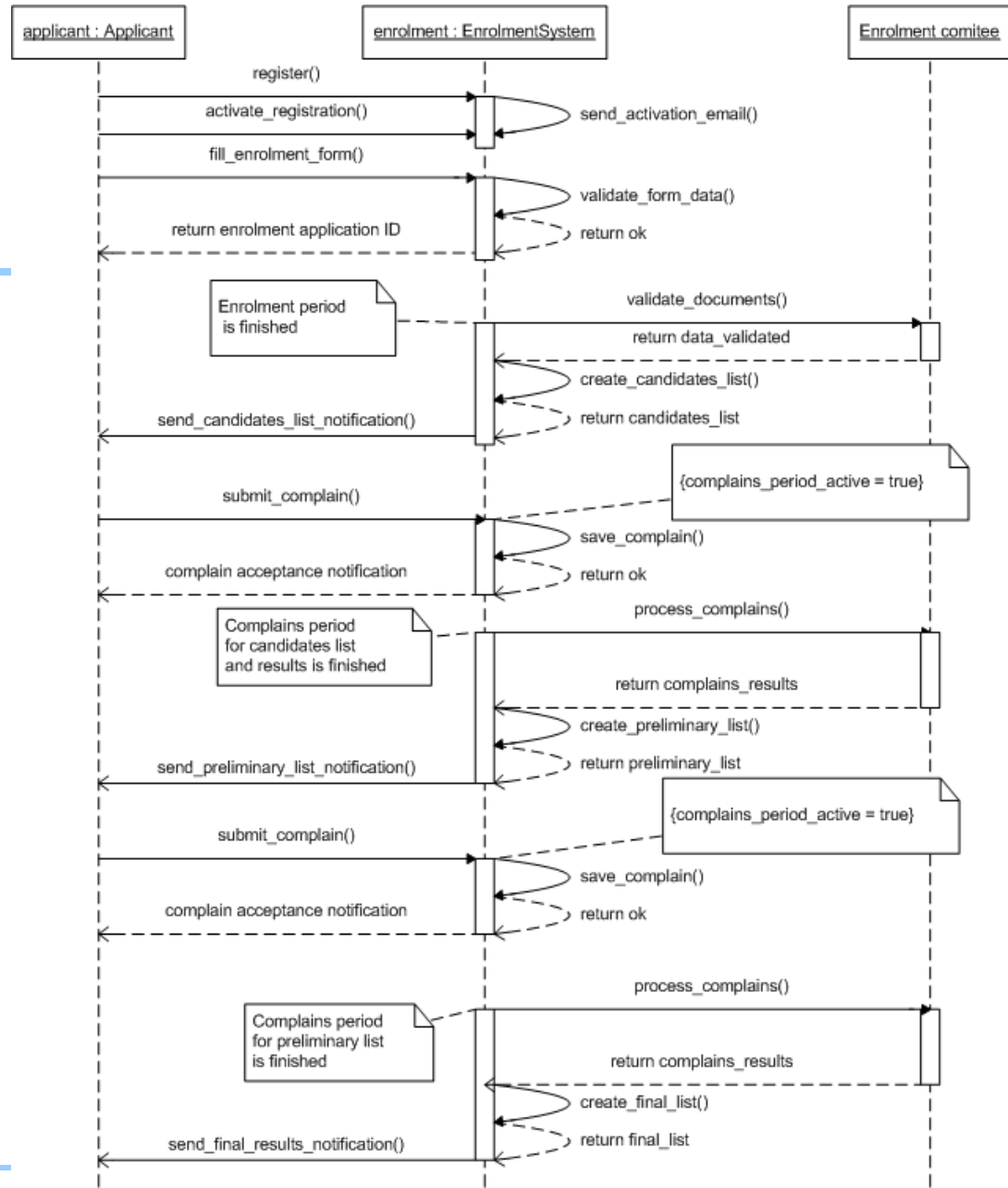
# Activity diagrams



# Activity diagrams



# Sequence diagrams



**Work in  
progress!!!**

# User interface

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- Registration and Login System
- Application form filling
- Screens: Applicant
  - Registration; Login; List; Search; Add; Modify; Auditing
- Screens: Master data
  - subjects that applicants has taken as part of the high school final year exam; faculties; study programmes; study programmes group (faculty); contract types; document types; fees payable by applicants; high schools
- Screens: Enrolment terms
- Screens: Admission officer applications review
- Screens: Ranking the candidates

# Data model

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- The data model is given as the most appropriate mechanism for description of the functional requirements rather than as the final definition of the data model.

# Applicant

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- **Functionality**
  - **List:** Provide a list of all applicants. Provide, sorting, paging and filtering functionality.
  - **Search:** Search for candidates by multiple criteria.
  - **Add:** SAO staff can enter applicant's data.
  - **Modify:** SAO staff can modify applicant's data.
  - **Auditing:** All changes to applicant's data are logged.
- **Business rules and access rights**
- **Applicants to second cycle of studies**
  - **Fields**
  - **Business Rules**



# Paid Fee

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- Paid Fee
  - Functionality
  - List: Provide a list of all fees paid by an applicant.
  - Search for candidates by paid and unpaid fees.
  - Maintain the list of fees paid signed by an applicant.
  - Auditing: All changes to paid fees are logged.
- Business rules and access rights
- Fields

# Provided Document

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- Provided Document
  - Functionality
    - List: Provide a list of all documents provided by an applicant in support of his enrolment application.
    - Search for candidates by provided and missing documents.
    - Maintain the list of documents provided by an applicant.
    - Auditing: All changes to provided documents are logged.
    - Electronic form: Scanned copies of provided documents are kept in the system.
  - Fields

# Signed Contract

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- Signed Contract
  - Functionality
    - List: Provide a list of all contracts signed by an applicant.
    - Search for candidates by signed and unsigned contracts.
    - Maintain the list of contracts signed by an applicant.
    - Auditing: All changes to signed contracts are logged.
  - Fields
    - Business rules and access rights

# Study programmes

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- Study programmes
  - Functionality
    - List: Provide a list of all study programmes.
    - Search filter, and sort the study programmes by all fields.
    - Maintain the study programmes.
    - Auditing: All changes to signed contracts are logged.
  - Fields
  - Business rules

# Study programmes group / faculty

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- Study programmes group / faculty
  - Fields
  - Business rules

# Student enrolment term

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Each enrolment term is defined by several dates when certain activities of the enrolment process are taking place.

- Inception date
- Submission start
- Submission end
- Special exam
- Candidate list publication
- Start of complaint period for applicant data
- End of complaint period for applicant data
- Preliminary ranking list publication
- Start of complaint period for ranking
- End of complain period for ranking
- Final ranking list publication
- Enrolment start
- Enrolment end

Different rules can apply for different groups of study programmes and in different enrolment terms.

# Ranking the candidates

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- Ranking the candidates
  - Functionality
    - Maintenance: Ranking points can be awarded to each applicant.
    - Publishing: Ranking list can be published at University / Faculty web site
    - Notification: Notifications (via email, SMS) can be sent to applicant containing the status of their application and position in the ranking list.
  - Fields
  - List of applicants
    - Preliminary and final ranking list
  - Reviewing the candidates' applications
  - Filling in a complaint
  - Complaints revision and answering
  - Business rules and access rights

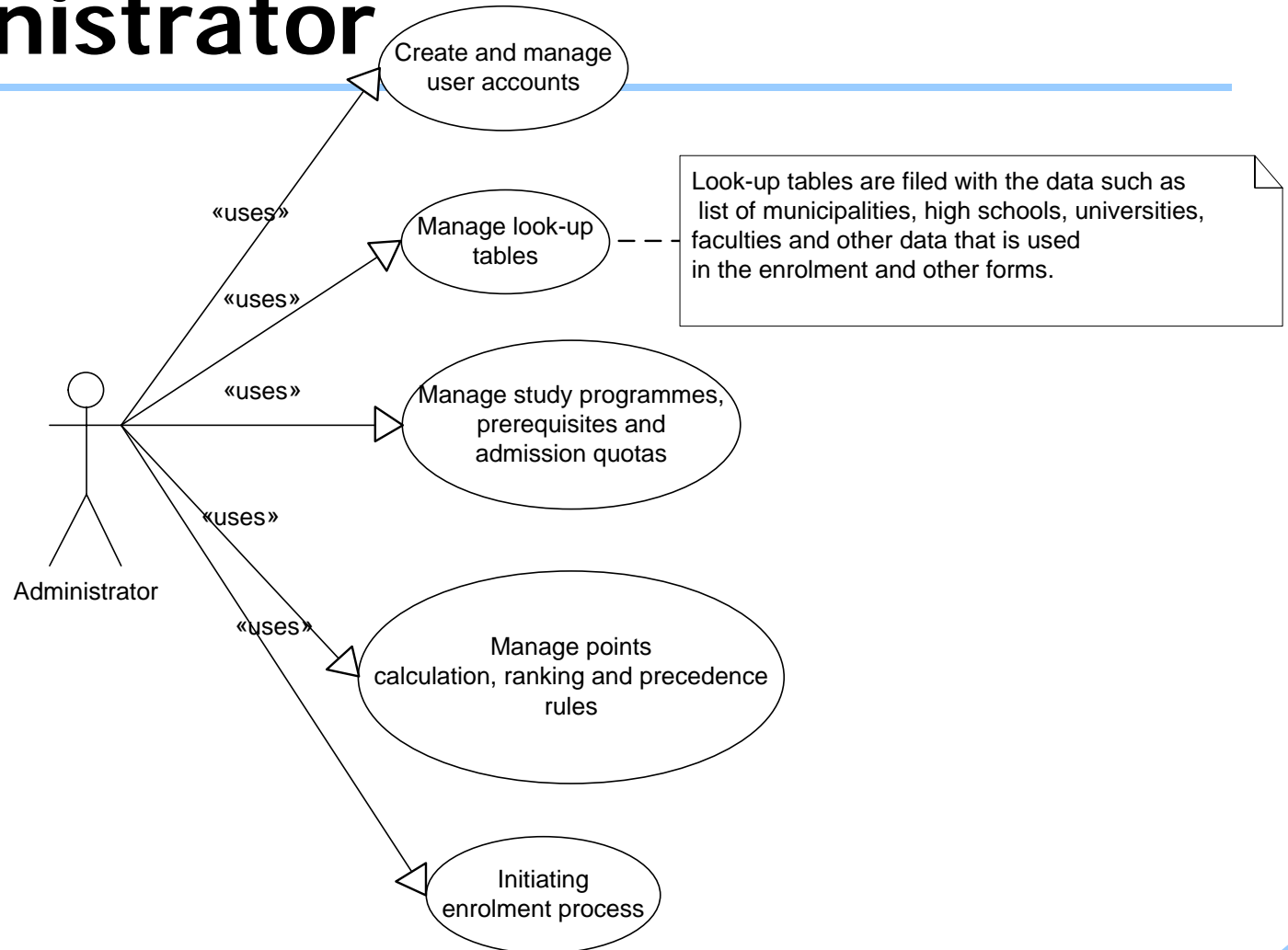
# Admission officer applications review

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- Admission officer applications review
- Master data
  - List of subjects that applicants sit as part of the high school final year exam
  - List of faculties
  - List of study programmes
  - List of contract types
  - List of document types
  - List of fees payable by applicants
  - List of High schools



# Administrator



# Reporting

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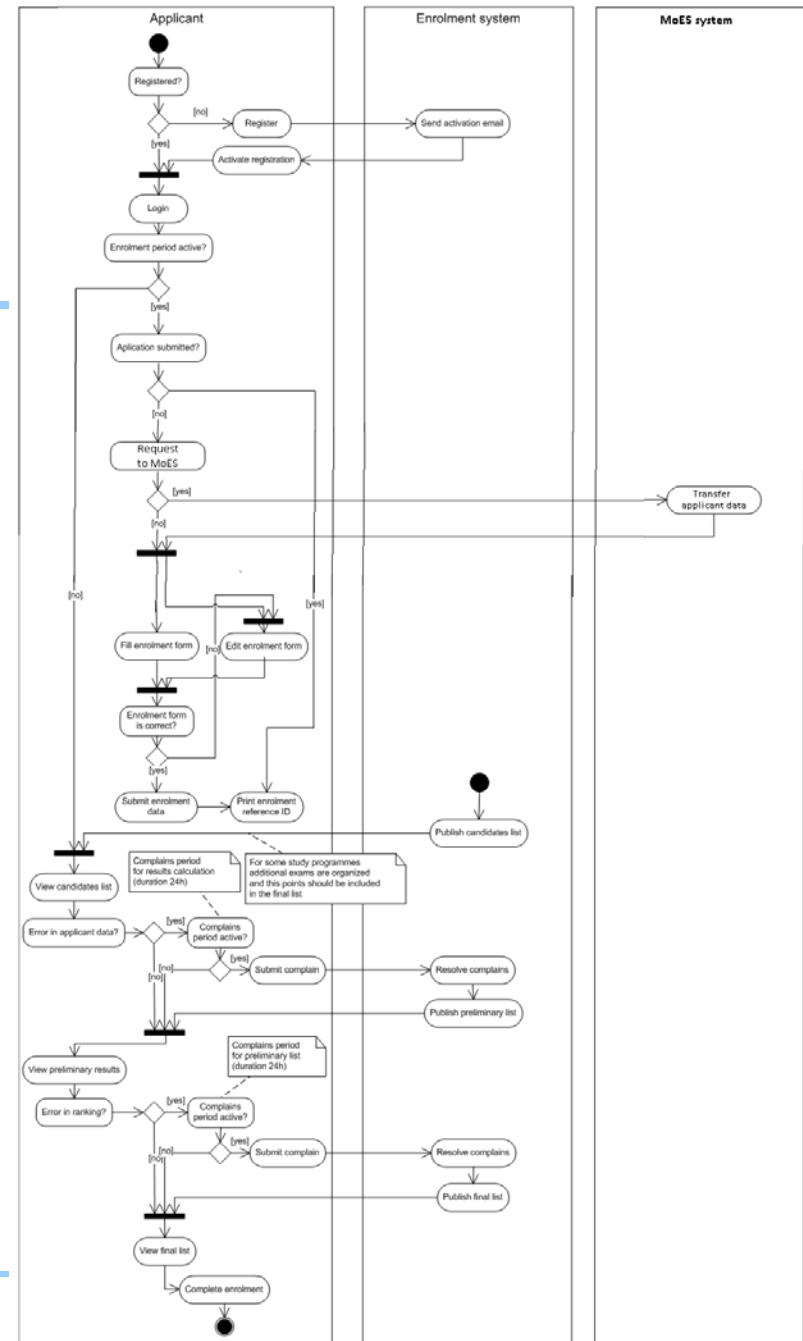
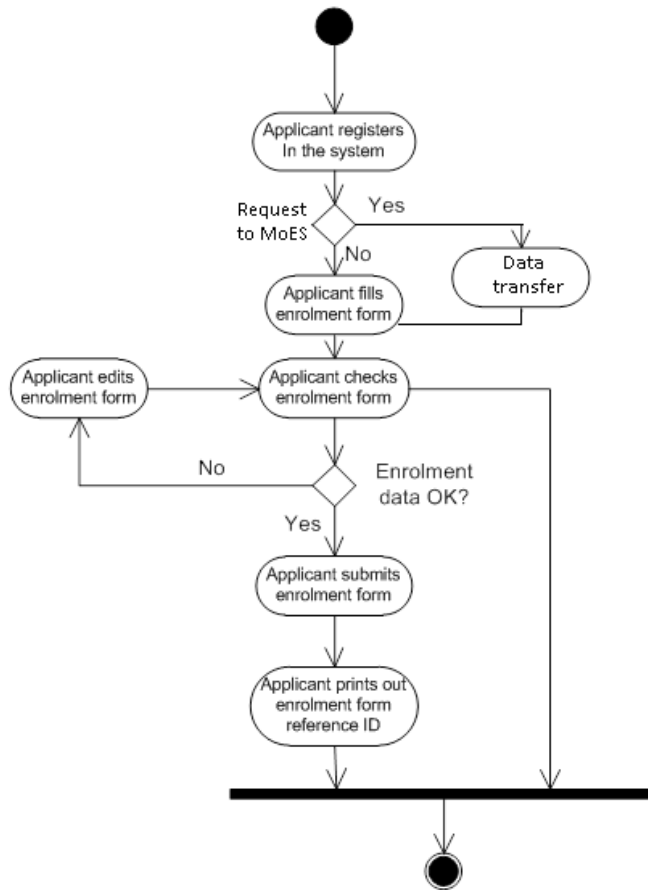
- Reports (for every study programme show the number of enrolled candidates that)
  - have applied
  - were tested (if testing was required)
  - have passed the test
  - are accepted for enrolment in state quota
  - are accepted for enrolment in private quota (full-time + part-time + total)
  - are accepted for enrolment in ethnicity quota
  - are accepted for enrolment under special circumstances (for every type)
  - are accepted for enrolment (total – sum of previous)

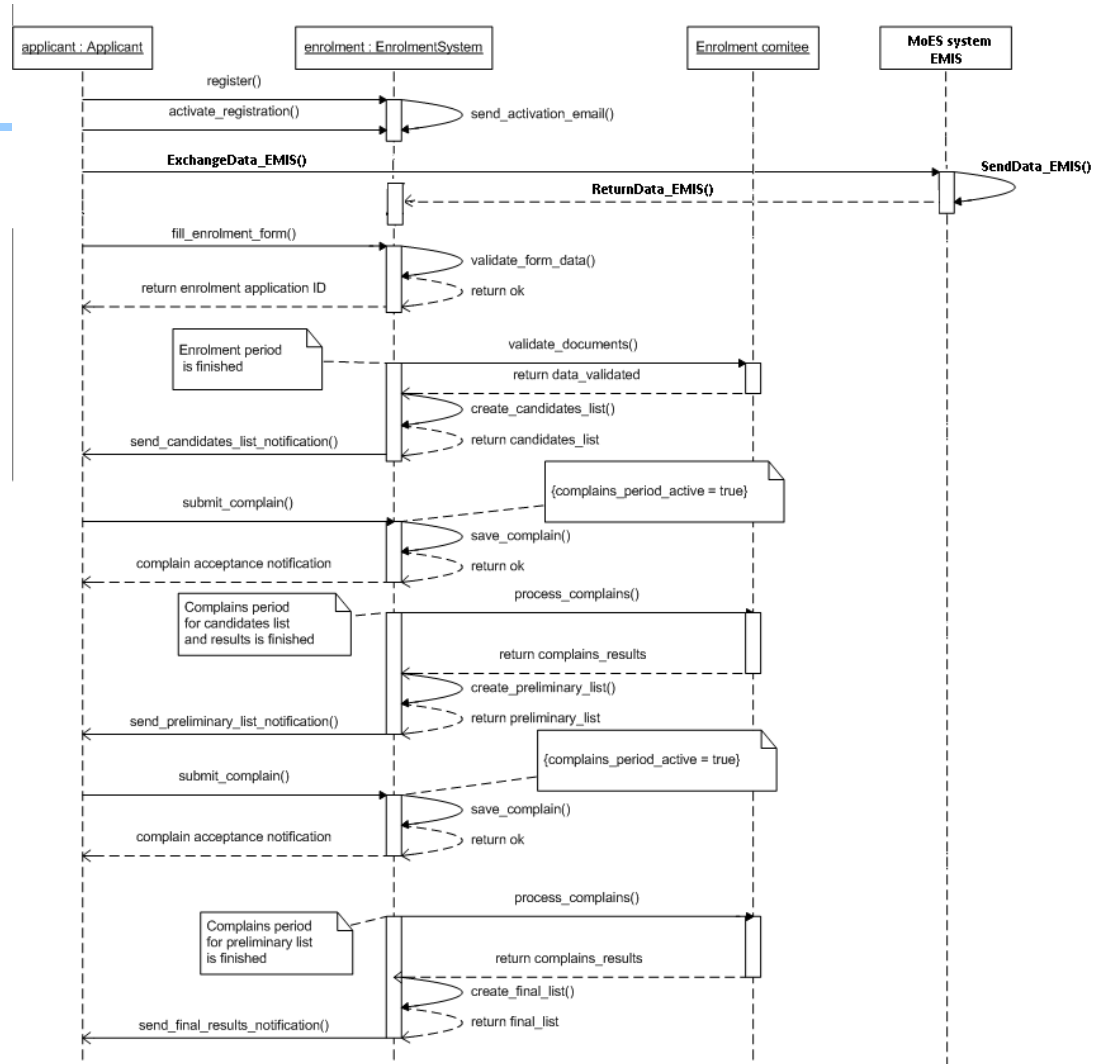
# Interface with other system

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- Interface for web service with MoES
  - Functionalities of the web service
  - Triggering EMIS by prospective students
- Web service
- Security

# Activity and sequence diagrams





# Other

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- Migration
  - “Enrolled candidates” web service
- Reporting web service to MoES
- Data archiving
- General Business Rules

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The end