Use Cases for I3

* From the top-level system requirements, create all use cases.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Use** | | **Case name** | | **Primary** | | **Description** | |
| **Case ID** | |  | | **Actor** | |  | |
|  | |  | |
| UC 1 | | Grant application | | Researchers | | Students will be able to apply for | |
|  | |  | |  | | grant application and the system will | |
|  | |  | |  | | accept it from them | |
|  | |  | |  | |  | |
| UC2 | | Update information | | Admin | | The admin will update information on | |
|  | | on current | |  | | current partnerships on the website | |
|  | | partnerships | |  | |  | |
| UC 3 | | Allow weekly | | Admin | | The admin will allow weekly updates | |
|  | | updates to | |  | | to newsletter on the website | |
|  | | newsletter | |  | |  | |
| UC 4 | | Allow to edit the | | Admin | | The system will allow users to edit | |
|  | | newsletter | |  | | the newsletter on the website | |
|  | |  | |  | |  | |
| UC 5 | | Delete newsletter | | Admin | | The system will allow administrators | |
|  | |  | |  | | to delete a newsletter | |
|  | |  | |  | |  | |
|  | | UC 6 | Find information | | Student | | The system will have a search bar to | |  | |
|  | |  |  | |  | | help users find information | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 7 | Target industry | | Researcher | | The system will target industry | |
|  | |  | partners | |  | | partners | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 8 | Allow the | | Admin | | The system will allow the | |
|  | |  | modification of | |  | | modification of grants | |  | |
|  | |  | grants | |  | |  | |  | |
|  | | UC 9 | Deletion of grants | | Researcher | | The system will allow the deletion of | |  | |
|  | |  |  | |  | | grants | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 10 | Accept application | | Student | | The system will accept student | |
|  | |  |  | |  | | applications | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 11 | Edit Application | | Student | | The system will | |
|  | |  |  | |  | | allow student applications to be | |  | |
|  | |  |  | |  | | edited | |  | |
|  | | UC 12 | Deletion of student | | Student | | The system will allow the deletion of | |  | |
|  | |  | applications | |  | | student applications | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 13 | Funding | | Researcher | | The system will accept researcher | |
|  | |  | Applications | |  | | funding applications | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 14 | Edit researcher | | Researcher | | The system will allow researcher | |
|  | |  | funding applications | |  | | funding applications to be edited | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 15 | Delete researcher | | Researcher | | The system will allow the deletion of | |
|  | |  | funding applications | |  | | researcher funding applications | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 16 | Take in industry | | Industry | | The system will accept industry | |
|  | |  | proposals | |  | | proposals | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 17 | Editi industry | | Industry | | The system will allow industry | |
|  | |  | proposals | |  | | proposals to be edited | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 18 | Delete industry | | Industry | | The system will allow the deletion of | |
|  | |  | proposals | |  | | industry proposals | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 19 | Add and conduct | | Admin | | The system will store and allow the | |
|  | |  | surveys | |  | | surveys | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 20 | Modify the surveys | | Admin | | The system will allow modifications | |
|  | |  |  | |  | | of the surveys | |  | |
|  | |  |  | |  | |  | |  | |
|  | | UC 21 | Delete the surveys | | Admin | | The system will allow deletion of the | |
|  | |  |  | |  | | surveys | |  | |
|  | |  |  | |  | |  | |  | |
| UC 22 | | Login | | Student | | The system will allow users to login | |
|  | |  | |  | | using their account names and | |
|  | |  | |  | | passwords | |
| UC 23 | | Backup the data | | Admin | | The system will back up the data | |
|  | |  | |  | | created | |
|  | |  | |  | |  | |
| UC 24 | | Recover the data | | Admin | | The system will allow the recovery of | |
|  | |  | |  | | data when needed | |
|  | |  | |  | |  | |
| UC 25 | | Create profiles | | Researcher | | The system will allow researchers to | |
|  | |  | |  | | create profiles to showcase their | |
|  | |  | |  | | works | |
| UC 26 | | Add events | | Admin | | The system will allow admin to add | |
|  | |  | |  | | events | |
|  | |  | |  | |  | |
| UC 27 | | Modify events | | Admin | | The system will allow admin to | |
|  | |  | |  | | modify events | |
|  | |  | |  | |  | |
| UC 28 | | Delete events | | Admin | | The system will allow admin to | |
|  | |  | |  | | delete events | |
|  | |  | |  | |  | |
| UC 29 | | Link the donation | | Industry | | The system will lead industries to | |
|  | | process directly to | |  | | UofL development departments’ | |
|  | | UofL development | |  | | webpages to continue their donation | |
|  | | departments | |  | | process | |
| UC 30 | | Link ThinkIR to the | | Industry | | The system will lead industries to | |
|  | | research page | |  | | UofL ThinkIR in order to showcase | |
|  | |  | |  | | UofL breakthroughs | |

* Use cases should be constructed as detail, essential use cases. Follow the actor/system response format of Arlow and Neustadt.

Our template for a simple use case specification contains the following information:

1. Use case name
2. Use case ID
3. Brief description – a paragraph that captures the goal of the use case
4. Actors involved in the use case
5. Preconditions – these are things that must be true before the use case can execute—they are Constraints on the state of the system
6. Main flow – the steps in the use case
7. Postconditions – things that must be true at the end of the use case
8. Alternative flows – a list of alternatives to the main flow.

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| Use Case: Grant application |
| ID:1 |
| Brief Description: Students will be able to apply for grant application and the system will accept it from them |
| Primary Actors: Researchers |
| Secondary Actors: None |
| Preconditions: User should log in to the website to be able to apply |
| Main Flow:   1. User will go to the website log in 2. User will create an account 3. User will apply |
| Postconditions:  The system will create an account and save the user application |
| Alternative flows: None |

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| Use Case: Accept application |
| ID: 10 |
| Brief Description: The system will accept student applications |
| Primary Actors: Student |
| Secondary Actors: None |
| Preconditions: Applicant will apply and submit the application |
| Main Flow:   1. Admin will go to the website 2. Admin will check the application 3. Admin will accept the application |
| Postconditions: Applicant can edit their application |
| Alternative flows: None |

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| Use Case: Edit Application |
| ID: 11 |
| Brief Description: System will allow student application to be edited |
| Primary Actors: Student |
| Secondary Actors: None |
| Preconditions: Applicant should apply |
| Main Flow:   1. Admin will go to the website 2. Admin will check the application 3. Admin will edit the application if it needs to be edited |
| Postconditions: None |
| Alternative flows: None |

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| Use Case: Deletion of student applications |
| ID: 12 |
| Brief Description: System will allow the deletion of student applications |
| Primary Actors: Students |
| Secondary Actors: none |
| Preconditions: Applicant should apply |
| Main Flow:   1. Admin will go to the website 2. Admin will check the application 3. Admin can delete he application if it needs to be deleted |
| Postconditions: The process of the application will be ready |
| Alternative flows: none |

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| Use Case: Funding Applications |
| ID: 13 |
| Brief Description: System will accept researcher funding applications |
| Primary Actors: Researcher |
| Secondary Actors: none |
| Preconditions: Funders should fund the amount to the university |
| Main Flow:   1. Funders should fund the amount to the university 2. The university will accept the fund and apply it to the researchers |
| Postconditions: Researchers will have funds to their research |
| Alternative flows: None |

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| Use Case: Edit researcher funding applications |
| ID: 14 |
| Brief Description: System will allow researcher funding applications to be edited |
| Primary Actors: Researcher |
| Secondary Actors: None |
| Preconditions: Researchers should have submitted funding application |
| Main Flow:  Researcher can edit their funding applications |
| Postconditions: None |
| Alternative flows: None |

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| Use Case: Delete researcher funding applications |
| ID: 15 |
| Brief Description: System will allow the deletion of researcher funding applications |
| Primary Actors: Researcher |
| Secondary Actors: None |
| Preconditions: Researchers should have submitted funding application |
| Main Flow:  Researcher can delete their funding applications |
| Postconditions: None |
| Alternative flows: None |

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| Use Case: Take in industry proposals |
| ID: 16 |
| Brief Description: The system will accept industry proposals |
| Primary Actors: Industry |
| Secondary Actors: None |
| Preconditions:  1. Industries should contact the Research & Innovation Office first |
| Main Flow:   1. The use case begins with the Industry log in to the website with their login information assigned by Research & Innovation Office 2. While the Industry details are valid    1. The system asks the Industry to enter their credentials comprising email address, password for confirmation    2. The system validates the Industry details.    3. The Industry will see the page for them to upload industry proposals 3. The proposal is accepted |
| Postconditions:   1. A portal has been created for Industry 2. The proposal will be displayed on the website to all users 3. Research & Innovation Office review the proposal |
| Alternative flows:  Invalid Email Address  Invalid Password  Cancel |

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| Use Case: Edit industry proposals |
| ID: 17 |
| Brief Description: The system will allow industry proposals to be edited |
| Primary Actors: Industry |
| Secondary Actors: None |
| Preconditions: Industry should have submitted proposals |
| Main Flow:   1. The use case begins with the Industry log in to the website with their login information assigned by Research & Innovation Office 2. While the Industry details are valid    1. The system asks the Industry to enter their credentials comprising email address, password for confirmation    2. The system validates the Industry details.    3. The Industry will see the proposal they uploaded before. 3. The proposal is edited |
| Postconditions:   1. Research & Innovation Office reviews the editing of the proposal |
| Alternative flows:  Invalid Email Address  Invalid Password  Cancel |

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| Use Case: Delete industry proposals |
| ID: 18 |
| Brief Description: The system will allow the deletion of industry proposals |
| Primary Actors: Industry |
| Secondary Actors: None |
| Preconditions:   1. Industry should have submitted proposals 2. Industry should inform Research & Innovation Office of the deletion in advance |
| Main Flow:   1. The use case begins with the Industry log in to the website with their login information assigned by Research & Innovation Office 2. While the Industry details are valid    1. The system asks the Industry to enter their credentials comprising email address, password for confirmation    2. The system validates the Industry details.    3. The Industry will see the proposal they uploaded before. 3. The proposal is deleted |
| Postconditions: None |
| Alternative flows:  Invalid Email Address  Invalid Password  Cancel |

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| Use Case: Add and conduct surveys |
| ID: 19 |
| Brief Description: The system will store and allow the surveys |
| Primary Actors: Admin |
| Secondary Actors: None |
| Preconditions: None |
| Main Flow:   1. The Admin creates surveys    1. The system shows surveys created by Research & Innovation Office to Students when they click on a button or tab 2. The survey is taken by users |
| Postconditions:   1. The survey results will be saved in the system |
| Alternative flows:  None |

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| Use Case: Modify the surveys |
| ID: 20 |
| Brief Description: The system will allow modification of the surveys |
| Primary Actors: Admin |
| Secondary Actors: None |
| Preconditions:  1.Admin has posted surveys |
| Main Flow:   1. Admin select the survey that needs modification 2. The survey is modified |
| Postconditions: None |
| Alternative flows: None |

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| --- |
| Use Case: Delete the surveys |
| ID: 21 |
| Brief Description: The system will allow deletion of the surveys |
| Primary Actors: Admin |
| Secondary Actors: None |
| Preconditions:  1. Admin has posted surveys |
| Main Flow:   1. Admin select the survey that needs modification 2. The survey is deleted |
| Postconditions: None |
| Alternative flows: None |

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| --- |
| Use Case: Login |
| ID: 22 |
| Brief Description: System will allow users to login using their account names and passwords |
| Primary Actors: Student |
| Secondary Actors: None |
| Preconditions: Users need to go to the website and create an account to be able to log in |
| Main Flow:   1. User will create an account 2. User will log in using his username and password |
| Postconditions: User can edit or delete applications from his account |
| Alternative flows: None |

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| Use Case: Backup the data |
| ID: 23 |
| Brief Description: System will back up the data created |
| Primary Actors: Admin |
| Secondary Actors: None |
| Preconditions: System should be running |
| Main Flow: System will back up the data that has been entered |
| Postconditions: System can recover the data in case of losing it |
| Alternative flows: None |

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| --- |
| Use Case: Recover the data |
| ID: 24 |
| Brief Description: System will allow the recovery of data when needed |
| Primary Actors: Admin |
| Secondary Actors: None |
| Preconditions: Back up the data |
| Main Flow:  System will recover and bring all the backed data back |
| Postconditions: No data will be lost |
| Alternative flows: None |

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| --- |
| Use Case: Create profiles |
| ID: 24 |
| Brief Description: System will allow researchers to create profiles to showcase their works |
| Primary Actors: Researcher |
| Secondary Actors: none |
| Preconditions: Go to the university research website |
| Main Flow:   1. Go to the university research website 2. Click on create profile to create your profile |
| Postconditions: Researchers will have account that they can log in later at anytime and edit what they want |
| Alternative flows: None |

* Repeat the set of system requirements identified in I2. Provide a trace matrix that associates use cases with system requirements. Explain how use cases may be traced to top-level system requirements.

System Requirements:

Nonfunctional

Operational

1. The system will operate on Windows 7, 8 & 10, Linux 2005 Minimum, or MAC OS 10.0

2. The system will need a 2.8 GHz or faster processor

3. The system will need at least 4 GB of free disk space

4. The system will need internet connection for software activation

5. The system will work on all web browsers

6. The system will integrate with the existing University of Louisville Research database

7. The system will work on mobile devices

Performance

1. Any interaction between user and system should not exceed 1 second

2. The system will update every 30 minutes

3. The system will run 24 hours per day, 365 days per year

4. The system will support the capacity of the University of Louisville’s Research Database

5. The system will handle 100 transactions per hour

Security

1. The system will allow only administrators can view applications

2. The system will allow only administrators can edit the newsletter

3. The system will allow users to see their transaction history

4. The system will allow only the administrator to see staff personal records

5. The system will only allow the issuer of the grant and the administrator to view grant information and status

6. The system will encrypt all transactions

Cultural & Political

1. The system will comply with the University of Louisville standard logo and color scheme

2. The system will be able to distinguish between the United States and European currencies

3. The system will comply with privacy standards

4. The system will only accept information following the UofL code of conduct.

Functional

1. The system will accept grant applications

2. The system will update information on current partnerships

3. The system will allow weekly updates to newsletter

4. The system will allow users to edit the newsletter

5. The system will allow administrators to delete newsletter

6. The system will have a search bar to help users find information

7. The system will target industry partners

8. The system will allow the modification of grants

9. The system will allow the deletion of grants

10. The system will take in student applications

11. The system will allow the editing of student applications

12. The system will allow the deletion of student applications

13. The system will take in researcher funding applications

14. The system will allow the editing researcher funding applications

15. The system will allow the deletion of researcher funding applications

16. The system will take in industry proposals

17. The system will allow the editing of industry proposals

18. The system will allow the deletion of industry proposals

How use cases may be traced to top-level system requirements, from the main system requirements we have the application, system will allow administrators to view applications. The system will allow also administrators to edit the newsletter add or delete it. Another one in the newsletter is system will Allow weekly updates to newsletter edit it or delete it. Also, in the system requirements, the system will allow users to see their transaction history. The system will allow only the administrator to see staff personal records. The system will only allow the issuer of the grant and the administrator to view grant information and status. The system will allow the modification or deletion of grants. The system will take in student applications and allow them to edit it or delete it. Also, the system will take in researcher funding applications. It is almost the same how the system requirements traced the use cases but the differences are the requirements focus on system operations with a tendency toward detailed system specification on the other hand use cases focus on interactions between the user and the system with a similar tendency of detailed specification. Also use cases focus on the outset external actors like users, processes, agents and how they interface with the system, whereas the functional requirements approach the problem from a solution angle, how can we employ this feature to solve our problem.