

Iteration 0 Delivery

Digital library team: BS19-02

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Sketch of product backlog with epics, features, and functionals.

Epics	Features	Functionals
Content adding	section creating filter inappropriate material innopoint for a contribution	assign moderators cybersecurity department
Interface	content overview assistance components leave feedback	user guide bookmarks support recommended material
Account	logging in unlocking fields	
Search engine		
Maintenance	fast application	

Overview of product backlog:

Epics	Features	Functionals
As a user, I want to upload different types of documents, videos, photos, and links, so that my content becomes accessible for other users.	<p>As an administrator, I want to create a section with a specific sphere of education (examples: ML, Cybersecurity), so that people can share and search for aforementioned content.</p> <p>As a moderator, I want to check and confirm the sharing requests so that we filter inappropriate material.</p> <p>As a user, I want my contribution to give part of innopoint so that I remain involved in the sharing process.</p>	<p>As an administrator, I want to assign moderators for specific sections so that the system would be manageable.</p> <p>As a moderator, I want the requested shared links to get checked from the cybersecurity department so that users can avoid insecure links and not get hacked.</p>

<p>As a user, I need a user-friendly interface so that it will be convenient to deal with it.</p>	<p>As a user, I want to view content inside a web service so that I wouldn't waste time downloading and searching for a file on my computer.</p> <p>As a user, I want to have assistance components, so that it becomes convenient for me to use the web application.</p> <p>As a user, I want to have the ability to leave feedback (e.g. rate content, write comments), so that I know what kinds of material are interesting for students.</p>	<p>As a user, I want to have a user guide so that I can view the main functions of the platform.</p> <p>As a user, I want to have a section where I store my favourite content (like bookmarks), so that I do not search for the same content every time.</p> <p>As a user, I want to have a support section regarding technical issues, so that I could help to improve the service work.</p> <p>As a professor, I want to show the students what course materials recommended them to read more carefully and what materials are not so important, so that I can help students prioritize all the course textbooks.</p>
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As a user I want to have an account so that I have access to a digital library.	<p>As a user, I want to log in using an Innopolis account so that I wouldn't need to come up with a separate username and password for the web service.</p> <p>As a user, I want to request a moderator to unlock thematic section with an interesting field for me, so that I could get information from this field.</p>	
As a user, I want to filter content by name, tags, type, and date, so that it becomes easier for me to navigate the information.		
As an IT department member, I want to keep the web service on Innopolis University servers so that it becomes easier to maintain all Innopolis University resources.	As a user, I want the web-service to work fast, so that I can interact with it without any problems.	

Sprint backlog for Iteration 1:

*Scrum board with assigned tasks (To Do column) is available here: <https://trello.com/b/ZwRozAkk/digital-library>

1. As a moderator, I want to check and confirm the sharing requests so that we filter inappropriate material.

Reason: this user story is important for the service because we want to allow every user to upload materials. But this feature can not be implemented without moderating uploaded content.

Tasks:

1. Create section for moderators to check requests to upload material
2. Implementation of filtering uploaded materials by moderators
3. Functionality Testing
4. Usability testing
5. Compatibility testing

2. As a user, I need a user-friendly interface so that it will be convenient to deal with it.

Reason: it is needed in the minimum expectations because users need a comfortable environment otherwise they will not be interested in using the application.

Tasks:

1. Design the interface of web service
2. Develop the layout of the interface
3. Interface task
4. Functionality Testing
5. Usability testing
6. Compatibility testing

3. As a user, I want to upload different types of documents, videos, photos, and links, so that my content becomes accessible for other users.

Reason: this US should be implemented to let users be able to share content and materials for courses (users includes students and professors).

Tasks:

1. Create module to convert files to BLOB
2. Create unit test for BLOB converter
3. Implement prototype of uploading unit
4. Create pending section of database and internal implementation of it
5. Functionality Testing
6. Usability testing
7. Compatibility testing

4. As an administrator, I want to assign moderators for specific sections so that the system would be manageable.

Reason: moderators should have a clear area of work, so that content would be moderated by a person involved in the topic.

Tasks:

1. Develop user profile
2. Develop unit to set assignee for a section
3. Functionality Testing
4. Usability testing
5. Compatibility testing

5. As a user, I want to filter content by name, tags, type, and date, so that it becomes easier for me to navigate the information.

Reason: this is a necessary functionality because users should have an efficient way to search and navigate through content.

Tasks:

1. Adding section unit
2. Build database to store content
3. Database testing.
4. Develop filtering by some field
5. Develop file search
6. Functionality Testing
7. Usability testing
8. Compatibility testing

Estimations of the user stories

*Estimations in story points are given by the following sequence: 0, ½, 1, 2, 3, 5, 8, 13, 20, 40, 100, ? (unsure)

User story	Estimation (in story points)
1. As a user, I want to upload different types of documents, videos, photos, and links, so that my content becomes accessible for other users.	20
2. As an administrator, I want to create a section with a specific sphere of education (examples: ML, Cybersecurity), so that people can share and search for aforementioned content.	13
3. As an administrator, I want to assign moderators for specific sections so that the system would be manageable.	8
4. As a moderator, I want to check and confirm the sharing requests so that we filter inappropriate material.	5
5. As a moderator, I want the requested shared links to get checked from the cybersecurity department so that users can avoid insecure links and not get hacked.	1/2
6. As a user, I want my contribution to give part of innopoint so that I remain involved in the sharing process.	?
7. As a user, I need a user-friendly interface so that it will be convenient to deal with it.	20
8. As a user, I want to view content inside a web service so that I wouldn't waste time downloading and searching for a file on my computer.	13

9. As a user, I want to have assistance components, so that it becomes convenient for me to use the web application.	40
10. As a user, I want to have a user guide so that I can view the main functions of the platform.	5
11. As a user, I want to have a section where I store my favourite content (like bookmarks), so that I do not search for the same content every time.	3
12. As a user, I want to have a support section regarding technical issues, so that I could help to improve the service work.	3
13. As a user, I want to have the ability to leave feedback (e.g. rate content, write comments), so that I know what kinds of material are interesting for students.	8
14. As a professor, I want to show the students what course materials recommended them to read more carefully and what materials are not so important, so that I can help students prioritize all the course textbooks.	1/2
15. As a user I want to have an account so that I have access to a digital library.	20
16. As a user, I want to log in using an Innopolis account so that I wouldn't need to come up with a separate username and password for the web service.	?

17. As a user, I want to request a moderator to unlock thematic section with an interesting field for me, so that I could get information from this field.	3
18. As a user, I want to filter content by name, tags, type, and date, so that it becomes easier for me to navigate the information.	40
19. As an IT department member, I want to keep the web service on Innopolis University servers so that it becomes easier to maintain all Innopolis University resources.	?
20. As a user, I want the web-service to work fast, so that I can interact with it without any problems.	40

Acceptance criteria:

1. As a user, I want to upload different types of documents, videos, photos, and links, so that my content becomes accessible for other users.

Type: Epic

AC:

Given: I'm a logged-in user on a special page for uploading content.

When: I choose content I want to upload and upload it.

Then: Content is uploaded to the database and waits for approval from the moderator.

2. As an administrator, I want to create a section with a specific sphere of education (examples: ML, Cybersecurity), so that people can share and search for aforementioned content.

Type: Feature

AC:

Given: I am a logged-in system administrator and I'm on the main page of the service.

When: I create the thematic section for users.

Then: Now users see this section and they can share and search for educational material in an efficient way.

3. As an administrator, I want to assign moderators for specific sections so that the system would be manageable.

Type: Functional

AC:

Given: I'm a logged-in system administrator, I'm on a page where I can see all moderator and professor profiles, with additional data about courses which each professor teaches.

When: A new moderator registers, I assign this moderator to some course.

Then: Moderators will be responsible for filtering the materials of the assigned courses for each one regularly.

4. As a moderator, I want to check and confirm the sharing requests so that we filter inappropriate material.

Type: Functional

AC:

Given: I'm a logged-in system moderator, I'm on the page with users' requests for adding materials.

When: I have got a new user's request to add new materials, I want to be able to view the materials and check their references.

Then: If the materials are appropriate and related to the assigned course, then I accept to post them or reject them.

5. As a moderator, I want the requested shared links to get checked from the cybersecurity department so that users can avoid insecure links and not get hacked.

Type: Functional

AC:

Given: I am a logged-in system moderator and I'm on the page with users' requests for adding materials.

When: I have got a user's request to add new materials from some website and the link to this website is also provided. I share this link with the cybersecurity department to check it.

Then: If the link is marked safe, I add it to the digital library content, otherwise I decline this user's request.

6. As a user, I want my contribution to give part of innopoint so that I remain involved in the sharing process.

Type: Feature

AC:

Given: I am a user involved in the sharing process.

When: I share materials.

Then: I receive innopoints and remain involved in the sharing process.

7. As a user, I need a user-friendly interface so that it will be convenient to deal with it.

Type: Epic

AC:

Given: I am a logged-in system user and I'm on the main page of the service.

When: I want to find my course related materials/find other interesting materials/open books or videos via viewer/edit my profile page/other and I do some actions on the service intuitively like on the similar to this and more popular ones.

Then: I find needed materials fast without any troubles, I can read a guide about using the digital library, I always can get the support from the administrator and write the feedback.

8. As a user, I want to view content inside a web service so that I wouldn't waste time downloading and searching for a file on my computer.

Type: Feature

AC:

Given: I'm a logged-in user on page where I can view content.

When: I choose some tab with content.

Then: Now I see content presented (text or video).

9. As a user, I want to have assistance components, so that it becomes convenient for me to use the web application.

Type: Feature

AC:

Given: I'm a logged-in system user.

When: I choose a helpful component from the assistance section.

Then: Assistant component appears.

10. As a user, I want to have a user guide so that I can view the main functions of the platform.

Type: Functional

AC:

Given: I am a logged-in system user.

When: I want to get information how to work with web applications, so that I go to the documentation page.

Then: User guide page appears.

11. As a user, I want to have a section where I store my favourite content (like bookmarks), so that I do not search for the same content every time.

Type: Functional

AC:

Given: I'm a logged-in system user.

When: I want to save the file to bookmarks, so I mark the file as a bookmark.

Then: This file is saved in the bookmarks list.

Given: I'm a logged-in system user, and I saved the content in my bookmarks beforehand.

When: I want to find the saved in bookmarks file, so I select the bookmark section.

Then: The list of content saved in bookmarks opens.

12. As a user, I want to have a support section regarding technical issues, so that I could help to improve the service work.

Type: Feature

AC:

Given: I'm a logged in system user logged.

When: I want to leave feedback about the service, so I write feedback messages in a special section.

Then: The feedback sent.

Given: I'm a system user logged in as an administrator.

When: I want to see feedback about the service in a special section.

Then: The feedback section appears.

Given: I'm a system user logged in as an administrator.

When: I want to respond to feedback, so I write a comment for pending review and send it.

Then: The user receives my response.

13. As a user, I want to have the ability to leave feedback (e.g. rate content, write comments), so that I know what kinds of material are interesting for students.

Type: Feature

AC:

Given: I am a logged-in user on the page where I can view content.

When: I go to tab with rating and comments.

Then: I can see which materials are interesting and share my own opinion.

14. As a professor, I want to show the students what course materials recommended them to read more carefully and what materials are not so important, so that I can help students prioritize all the course textbooks.

Type: Functional

AC:

Given: I am a logged in professor on the section with my course materials.

When: I choose materials recommended to read more carefully and ones that are not so important.

Then: It becomes easier for students to prioritize all the course textbooks.

15. As a user I want to have an account so that I have access to a digital library.

Type: Epic

AC:

Given: I'm a potential system user.

When: I want to use the web application, so I login to account.

Then: I can use the web application.

16. As a user, I want to log in using an Innopolis account so that I wouldn't need to come up with a separate username and password for the web service.

Type: Feature

AC:

Given: I'm a logged out system user and I'm on the sign-in page of the service.

When: I select "sign in through a Innopolis University account" option.

Then: Service redirects me to the Innopolis University's login page.

17. As a user, I want to request a moderator to unlock thematic section with an interesting field for me, so that I could get information from this field.

Type: Feature

AC:

Given: I'm a logged-in user on a page of user information and I can see available groups of material for me.

When: I request the unavailable yet field for me, that I'm interested in.

Then: Moderator sees the request and unlocks special fields for me.

18. As a user, I want to filter content by name, tags, type, and date, so that it becomes easier for me to navigate the information.

Type: Epic

AC:

Given: I'm a logged-in user on page where I can view content.

When: I type something in special form.

Then: I see content is filtered according to typed in content.

19. As an IT department member, I want to keep the web service on Innopolis University servers so that it becomes easier to maintain all Innopolis University resources.

Type: Epic

AC:

Given: I am an IT department member.

When: The server is deployed.

Then: The web service would be on Innopolis University servers and it becomes easier to maintain all resources.

20. As a user, I want the web-service to work fast, so that I can interact with it without any problems.

Type: Feature

AC:

Given: I'm a system user.

When: I interact with the service and perform any action prescribed by the functionality.

Then: The service's response time to my request is less than 5 seconds for normal pages and less than 30 seconds for reports pages. User estimation taken from [1].

INVEST criteria evaluation:

All INVEST criteria are left by default, as each parameter is crucial for our project on an equal scale. Also, the chosen range of three is suitable for evaluating our user stories since it simplifies and speeds up the grading process, which is very beneficial within the deadline.

Independent:

- 3-fully independent
- 2-loosely coupled
- 1-depend on other user stories

Negotiable:

- 3-negotiable
- 2-needs to be checked
- 1-written contract

Valuable:

- 3-essential
- 2-likely to have
- 1-inessential

Estimatable:

- 3-easy to estimate
- 2-needed a prototype
- 1-hard to estimate

Small:

- 3-small enough
- 2-takes full effort

1-does not fit to sprint and should be split

Testable:

3-have clear AC

2-have vague AC

1-do not have AC

Table with user stories that assessed with INVEST technique:

	Independent	Negotiable	Valuable	Estimatable	Small	Testable
1. As a user, I want to upload different types of documents, videos, photos, and links, so that my content becomes accessible for other users.	3	2	3	3	2	3
2. As an administrator, I want to create a section with a specific sphere of education (examples: ML, Cybersecurity), so that people can share and search for aforementioned content.	3	3	2	3	2	3
3. As an administrator, I want to assign moderators for specific sections so that the system would be manageable.	3	3	2	3	3	3
4. As a moderator, I want to check and confirm the sharing requests so that we filter inappropriate material.	2	3	3	3	3	3
5. As a moderator, I want the requested shared links to get checked from the cybersecurity department so that users can avoid insecure links and not get hacked.	3	3	3	2	2	2

6. As a user, I want my contribution to give part of innopoint so that I remain involved in the sharing process.	3	3	2	1	3	3
7. As a user, I need a user-friendly interface so that it will be convenient to deal with it.	1	2	3	2	2	2
8. As a user, I want to view content inside a web service so that I wouldn't waste time downloading and searching for a file on my computer.	3	2	2	3	2	3
9. As a user, I want to have assistance components, so that it becomes convenient for me to use the web application.	3	3	2	1	1	2
10.As a user, I want to have a user guide so that I can view the main functions of the platform.	3	2	2	3	2	3
11.As a user, I want to have a section where I store my favourite content (like bookmarks), so that I do not search for the same content every time.	3	2	3	2	3	3
12.As a user, I want to have a support section regarding technical issues, so that I could help to improve the service work.	3	2	1	3	3	3

13.As a user, I want to have the ability to leave feedback (e.g. rate content, write comments), so that I know what kinds of material are interesting for students.	3	2	3	3	2	2
14.As a professor, I want to show the students what course materials recommended them to read more carefully and what materials are not so important, so that I can help students prioritize all the course textbooks.	3	1	3	3	3	3
15.As a user I want to have an account so that I have access to a digital library.	3	2	3	2	1	2
16. As a user, I want to log in using an Innopolis account so that I wouldn't need to come up with a separate username and password for the web service.	3	1	3	3	3	3
17. As a user, I want to request a moderator to unlock thematic section with an interesting field for me, so that I could get information from this field.	3	3	3	3	3	3
18.As a user, I want to filter content by name, tags, type, and date, so that it becomes easier for me to navigate the information.	3	2	3	3	2	3

19.As an IT department member, I want to keep the web service on Innopolis University servers so that it becomes easier to maintain all Innopolis University resources.	3	3	3	3	3	3
20. As a user, I want the web-service to work fast, so that I can interact with it without any problems.	3	2	2	2	1	2

Reasoning for assessment of 5 user stories that have different grades:

1. (#4) As a moderator, I want to check and confirm the sharing requests so that we filter inappropriate material.

(2,3,3,3,3,3)

Independent: the feature is loosely coupled (2), because we can implement it only after creating the users hierarchy.

Negotiable: the feature is negotiable (3), because there are no technical details which need to be discussed; the criteria of inappropriate materials are set by University's administration.

Valuable: the feature is essential (3), because one of the main reasons to create such a service is to have access only to relevant, credible and useful information for study.

Estimatable: the feature is easy to estimate (3), because it has already been implemented in many services that we use every day, so, we have some view about how it should be implemented.

Small: the feature is small enough (3), because it requires just sending the materials firstly to moderators and after that either these materials are uploaded to the whole library either they are declined and deleted.

Testable: the feature has clear acceptance criteria (3), such as: whether the material appeared in the shared library or not, was it sent to a specific moderator, is it possible for the user to download the material without confirmation or it is not available, etc.

2. (#7) As a user, I need a user-friendly interface so that it will be convenient to deal with it.(1,2,3,2,2,2)

Independent: this story depends on other stories because it depends on the number of sections in the website, how they are presented, and most of other features and the way they are implemented in the website.

Negotiable: it's needs to be checked because it doesn't mention the way the user interface should exactly be like

Valuable: this story is likely to have because it only helps to be more comfortable while using the website, but it's not a critical feature that can affect the efficiency of the app

Estimatable: This story cannot be estimated easily, because we need to go through many stages of taking student opinions and updating interface.

Small: this story takes full effort because it depends on other features' implementation and students' opinions so it takes time to do its prototype and to do changes in it.

Testable: this story has a vague Acceptable criteria because there's no certain user interface we can use(i.e it's not fixed).

3. (#19) As an IT department member, I want to keep the web service on Innopolis University servers so that it becomes easier to maintain all Innopolis University resources. (3,3,3,1,2,3)

Independent: this story is completely independant, because we need to have only a template of the page to deploy it, and then we can update everything. That means we do not need anything beforehand to do this task.

Negotiable: this story is quite negotiable, because we can negotiate everything with the IT department. If deployment on UI servers will be prohibited, we can always use clouds instead.

Valuable: this is the most valuable story, because Most of all it is a web application, so deployment of our web application is the most crucial part.

Estimatable: this story is not quite estimable, because maybe communication problems with the IT department causes us problems with deployment.

Small: this story is clear and precise, but some troubles might happen.

Testable: this story is testable, because clearly it fits the criteria to be in binary answer. Either it will be deployed and we can access it or not.

4. (#1) As a user, I want to upload different types of documents, videos, photos, and links, so that my content becomes accessible for other users. (3,2,3,3,2,3)

Independent: This story is not independent, because it requires the service to have content preview mode.

Negotiable: This story is negotiable, because there are a lot of ways to implement described functionality .

Valuable: This story is essential, because it shows user preferences.

Estimatable: This feature needs a prototype, because our team needs to study a lot of new things.

Small: This story takes full effort, because it requires not only uploading feature, but also content preview mode to be implemented.

Testable: This story can easily be checked, because required functionality is clear.

5. (#11) As a user I want to have a section where I store my favourite content, so that I do not search for the same content every time. (3,2,3,2,3,3)

Independent: this story is completely independent (3), because in our backlog there are no more stories related to bookmarks or individual pages for the content user like.

Negotiable: this story needs to be checked (2), it may change in the process of rewriting the backlog.

Valuable: this story is essential (3), because it brings actual project-related value to the stakeholder as the main point was to consider all features from a user perspective.

Estimatable: This story may need refactoring, because we don't know what other features are required for the favorite content.

Small: this story is small enough (3), because our team believes that it will only take 1 sprint to implement a static section with favorite content provided that the function of adding thematic pages is already implemented.

Testable: feature has clear acceptance criteria (3), because the product is clearly required to have a separate section where users can add the necessary content.

Departments:

Frontend: Denis Schegletov, Aidar Khuzin.

Backend: Danis Alukaev, Aidar Khuzin, Karina Singatullina.

Quality Assurance: Tasneem Toolba, Karina Singatullina.

DOD for project:

1. Underlying code should be completed for all functionals described in user stories.

Action: code revision.

Reason: the initial condition for the stakeholder to be satisfied with the functionality that he described in the interview is their full implementation.

Department: Backend, Frontend.

2. Code and documentation should follow PEP8 style guide.

Action: code revision.

Reason: for good maintainability, the product must be clearly written and documented; since the primary programming language for our project is Python we will use its style guide.

Department: Frontend, Backend and Quality Assurance.

3. Unit test coverage is at least 80%.

Action: testing of code units.

Reason: to be sure that each program unit in the developed solution is working properly there should be sufficient test coverage, 80% is feasible for our team within the assigned time.

Department: Quality Assurance.

4. All functional tests passed.

Action: testing of the system.

Reason: all functions must work as a system without any problems, otherwise the user will have a bad experience with the product.

Department: Quality Assurance.

5. All business functionality and acceptance criteria of user stories met.

Action: reflection on the project backlog.

Reason: allows us to evaluate how our product is designed in accordance with expectations from a business and user perspective.

Department: Frontend, Backend and Quality Assurance.

6. There are no known defects.

Action: reflection on the code.

Reason: before the deployment all known defects should be eliminated in order to preserve undefined behaviour in usage.

Department: Frontend, Backend and Quality Assurance.

7. Software product is deployed.

Action: project deployment.

Reason: according to the stakeholder's expectations the minimum viable product must be deployed and put into operation.

Department: Quality Assurance.

Project git repository: <https://github.com/DanisAlukaev/Digital-Library>

Git workflow:

0. The task card moved from **To-Do** to **Doing**.

1. Checkout *develop* branch: `git checkout -b develop`.
2. Create a new branch from *develop* using: `git checkout -b <name>`.
3. Write the code here.

3.1 In order to set the Git to track the changes of all newly created files: `git add .`

3.2 To track only specific files: `git add filename1 filename2 filename3 ... filenameN`.

3.3 To exclude specific files or directories from Git tracking mention them in `.gitignore` file.

4. Commit the changes, i.e., create the code version checkpoint one will be able to return to in future:

`git commit -m '+ <some_feature>'`.

4.1 Push local changes to the remote repository <https://github.com/DanisAlukaev/Digital-Library>.

The changes can include several commits: `git push origin <name>`.

5. Create Merge Request (MR) in branch *develop* (Assignee: Danis Alukaev).

6. Move the task card from **Doing** to **Review**.

7. Assignee checks the code, makes sure that the task was completed correctly.

7.1. If the implementation is nice, the assignee merges branch *<name>* into *develop* branch . Task card moves to **QA**, where the feature is tested.

7.2. If there is any issue in implementation, either conflicts with *develop* branch or non-optimal implementation or bad code style in implementation, then the task card moves to **Doing** state (all the issues listed in correspondent card).

The cycle repeated for all features.

Release: after one sprint (2 weeks) the *develop* branch is merged into *master* branch.

Branches for developing of new functionality should be called: feature/<description>

Branches for fixing previously developed functionality should be called: fix/<description>

Commit message (git commit -m '<MESSAGE>').

1. You added new functionality: -m '+ <description>'.
2. You fixed the issue in previously developed code: -m '! <description>'.
3. You deleted useless staff: -m '-' <description>'.
4. No changes in functionality, but the code became better or directory structure became more logical: -m '=' <description>'.

Reference list:

[1] S. Barber, "How Fast Does a Website Need To Be?", PerfTestPlus Inc. Florida, United States of America, 2010.

Accessed: Sep. 22, 2020. [Online]. Available: http://www.perftestplus.com/resources/how_fast.pdf