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**SOFTWARE DEVELOPMENT MANAGEMENT**

PRACTICAL ASSIGNMENT  
PROJECT WORK  
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# **1. PROJECT IDEA, GOAL AND SCOPE**

## **1.1. Idea**

Project idea would be a clothing e-commerce shop.

## **1.2. Goal**

To create ecommerce website that provides clothes and quick & easy checkout for its clients

## **1.3. Scope**

To create an ecommerce shop meets customer needs:

- Desing UI components for all the pages of the project.
- Develop user profile and its info.
- Develop cart and checkout logic.
- Implement admin panel to show all the administrator related data.
- Test application components, pages and routes.
- Test cart, state and review functionality.
- Deploy the application on Heroku.

## **1.4. Stakeholders**

- Project owner.
- Customers.
- Team members.
- Sellers.

## **1.5. Implementation location and time**

2021, Vilnius University of Applied Sciences, using virtual tools like MS Teams.

## 2. PROJECT SCHEDULE AND BUDGET

### 2.1. Work breakdown structure (WBS)

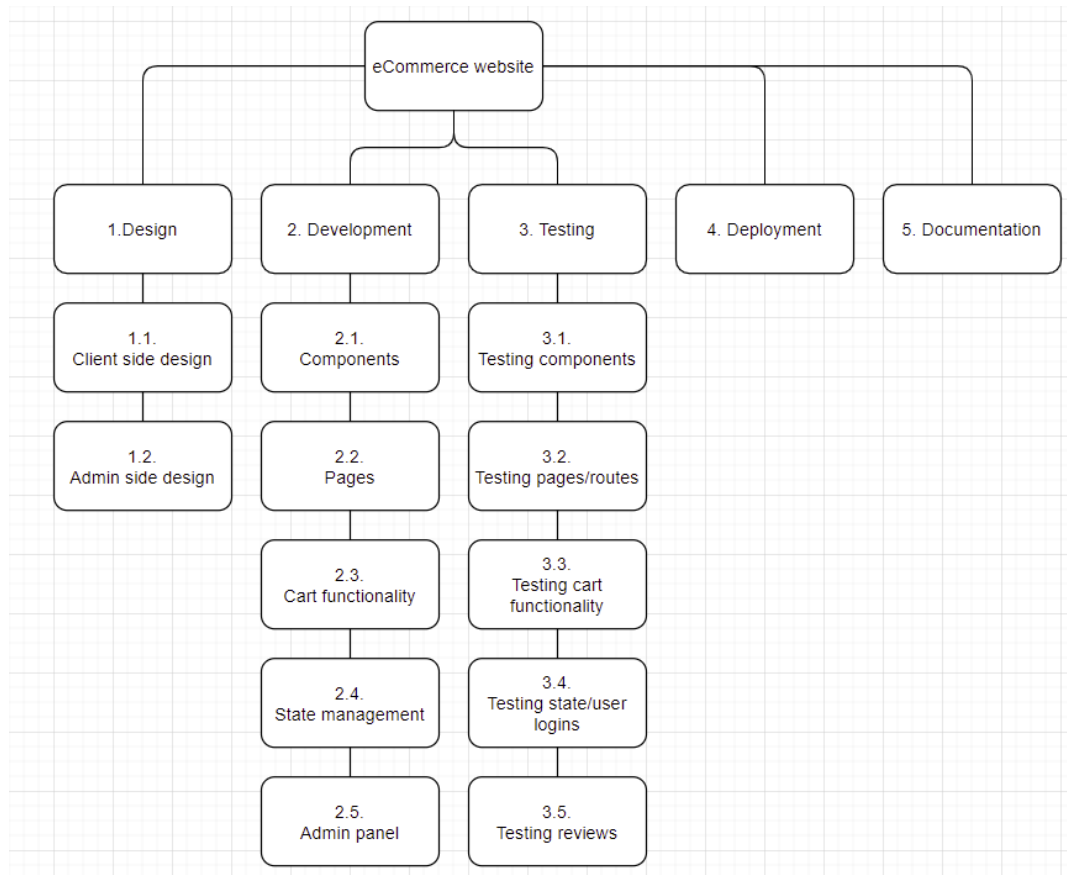


Figure 1 – WBS

Basic work breakdown structure (WBS) for the project that consists of 5 parts: design, development, testing, deployment, documentation.

### 2.2. Network Diagram

### 2.3. Project tasks, their duration and dependencies

	Task Mode	Task Name	Duration	Start	Finish	Predecessors
0		<b>Project Džiugas-Edit</b>	<b>89 d</b>	<b>September 06</b>	<b>January 14</b>	
1		<b>1 Analyzing the requirements</b>	<b>5 d</b>	<b>September 06</b>	<b>September 10</b>	
2		1.1 Consultation	1 d	September 06	September 06	
3		1.2 Creating requirements for the project	2 d	September 07	September 08	2
4		1.3 Model requirements	2 d	September 08	September 10	3
5		<b>2 Design phase</b>	<b>9 d</b>	<b>September 10</b>	<b>September 19</b>	<b>1</b>
6		2.1 Create a model	7 d	September 10	September 17	4
7		2.2 Consult with the client	1 d	September 22	September 22	6
8		2.3 Edit the model	1 d	September 22	September 23	7
9		<b>3 Development phase</b>	<b>46 d</b>	<b>September 24</b>	<b>November 26</b>	<b>5</b>
10		3.1 Build the front-end	10 d	September 24	October 07	8
11		3.2 Build the front-end	8 d	October 08	October 19	10
12		3.3 Create a database	5 d	October 20	October 26	11
13		3.4 Create a back-end	16 d	October 27	November 12	12
14		3.5 Write documentation	7 d	November 18	November 26	13
15		<b>4 Testing phase</b>	<b>28 d</b>	<b>November 27</b>	<b>January 13</b>	<b>9</b>
16		4.1 User experience test	2 d	November 29	November 30	14
17		4.2 Fix bugs	5 d	December 01	December 06	16
18		4.3 Unit testing	6 d	December 01	December 11	17
19		4.4 Fix issues	5 d	December 11	December 21	18
20		4.5 Stress testing	4 d	December 21	January 05	19
21		4.6 Program optimization	6 d	January 06	January 13	20
22		5 Deployment	1 d	January 14	January 14	15
23		6 Finish	0 d	January 14	January 14	22

Figure 2 - Project tasks, their duration and dependencies

Project goals created using MS Project software.

## 2.4. Material resources and their costs

Paper	Material	P		15,00 €	0,00 €	Prorated
Computer	Material	C		200,00 €	0,00 €	Prorated
Coffee + Milk	Material	C		50,00 €	0,00 €	Prorated
Pen	Material	P		1,00 €	0,00 €	Prorated

Figure 3 - Material resources

All the material resources and their costs.

## 2.5. Human resources, payment rates and methods

Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/U.	Accrue	Base	C
Project Manager	Work		P		100%	15,00 €/h	20,00 €/h	0,00 €	Prorated	Standard	
Designer	Work		D		100%	0,00 €/h	0,00 €/h	500,00 €	Prorated	Standard	
Front-end developer 1	Work		F1		100%	15,00 €/h	20,00 €/h	0,00 €	Prorated	Standard	
Front-end developer 2	Work		F2		100%	15,00 €/h	20,00 €/h	0,00 €	Prorated	Standard	
Database developer	Work		D		100%	13,00 €/h	18,00 €/h	0,00 €	Prorated	Standard	
Back-end developer	Work		B		100%	20,00 €/h	25,00 €/h	0,00 €	Prorated	Standard	
Software tester 1	Work		ST1		100%	10,00 €/h	15,00 €/h	0,00 €	Prorated	Standard	
Software tester 2	Work		ST2		100%	15,00 €/h	20,00 €/h	0,00 €	Prorated	Standard	
Software tester 3	Work		ST3		100%	13,00 €/h	18,00 €/h	0,00 €	Prorated	Standard	

Figure 4 - Human resources

Human resources and their rates. There are total of 9 people employed.

1. Project manager – 15euro/h and 20euro/h overtime.
2. Designer – 500 euros for the entire project.
3. Front-end developer 1 - 15euro/h and 20euro/h overtime.
4. Front-end developer 2 - 15euro/h and 20euro/h overtime.
5. Database developer - 13euro/h and 18euro/h overtime.
6. Back-end developer - 20euro/h and 25euro/h overtime.
7. Software tester 1 - 10euro/h and 15euro/h overtime.
8. Software tester 2 - 15euro/h and 20euro/h overtime.
9. Software tester 3 - 13euro/h and 18euro/h overtime.

## 2.6. Fixed costs

	Task Name	Cost	Accrual	Total Cost	Baseline	Variance	Actual	Remaini
0	ProjectDžiugas-Edi	0,00 €	Prorated	15.244,00 €	0,00 €	5.244,00 €	0,00 €	5.244,00 €
1	1 Analyzing the requirements	0,00 €	Prorated	600,00 €	0,00 €	600,00 €	0,00 €	600,00 €
5	2 Design phase	0,00 €	Prorated	1.500,00 €	0,00 €	1.500,00 €	0,00 €	1.500,00 €
9	3 Development phase	0,00 €	Prorated	8.768,00 €	0,00 €	8.768,00 €	0,00 €	8.768,00 €
15	4 Testing phase	0,00 €	Prorated	4.376,00 €	0,00 €	4.376,00 €	0,00 €	4.376,00 €

Figure 5- Fixed costs

The most budget was spent on development of the application. On the other hand, the least spent on the project was on the requirement phase.

## 2.7. Resources assigned to project tasks

		Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
0			<b>Project Duration - Edit</b>	<b>89 d</b>	<b>September 06</b>	<b>January 14</b>		
1			<b>1 Analyzing the requirements</b>	<b>5 d</b>	<b>September 06</b>	<b>September 10</b>		
2			1.1 Consultation	1 d	September 06	September 06		Project Manager
3			1.2 Creating requirements for the project	2 d	September 07	September 08	2	Project Manager
4			1.3 Model requirements	2 d	September 08	September 10	3	Project Manager
5			<b>2 Design phase</b>	<b>9 d</b>	<b>September 11</b>	<b>September 21</b>		
6			2.1 Create a model	7 d	September 11	September 18	4	Designer
7			2.2 Consult with the client	1 d	September 22	September 22	6	Designer
8			2.3 Edit the model	1 d	September 22	September 23	7	Designer
9			<b>3 Development phase</b>	<b>46 d</b>	<b>September 24</b>	<b>November 5</b>		
10			3.1 Build the front-end	10 d	September 24	October 07	8	Front-end developer 1
11			3.2 Build the front-end	8 d	October 08	October 19	10	Front-end developer 2
12			3.3 Create a database	5 d	October 20	October 26	11	Database developer
13			3.4 Create a back-end	16 d	October 27	November 12	12	Back-end developer
14			3.5 Write documentation	7 d	November 18	November 26	13	Back-end developer; Database
15			<b>4 Testing phase</b>	<b>28 d</b>	<b>November 29</b>	<b>January 13</b>	<b>9</b>	
16			4.1 User experience test	2 d	November 29	November 30	14	Software tester 1
17			4.2 Fix bugs	5 d	December 01	December 07	16	Front-end developer 1
18			4.3 Unit testing	6 d	December 01	December 11	17	Software tester 2
19			4.4 Fix issues	5 d	December 11	December 21	18	Back-end developer
20			4.5 Stress testing	4 d	December 21	January 05	19	Software tester 3
21			4.6 Program optimization	6 d	January 06	January 13	20	Back-end developer; Front-end
22			5 Deployment	1 d	January 14	January 14	15	
23			6 Finish	0 d	January 14	January 14	22	

Figure 6 - project tasks with resources

Table of tasks which shows task duration, its finish and start dates, resources associated with. Total project duration can be seen on at the top of the table which is 89 days.

## 2.8. Project schedule

In the Figure 7 it's displayed the critical path of the project and the workers that are assigned to the task.

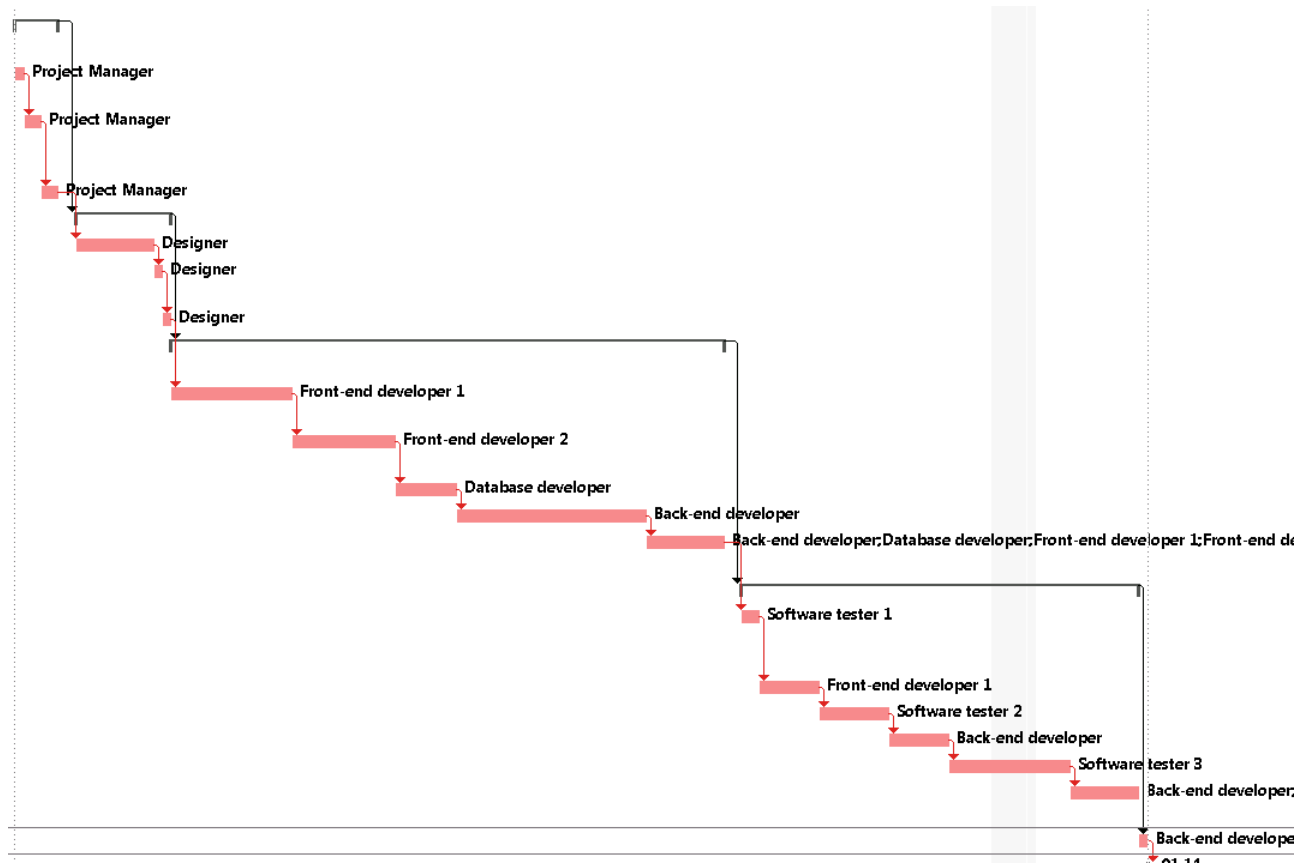


Figure 7- Project schedule

## 2.9. Project budget

Overall the project budget is 15,244€.

## 3. PROJECT FUNDING SOURCES.

### 3.1. Determine project funding sources.

1. Loan - generally have higher rates of interest and are less flexible as payments need to be made for a pre-agreed amount and at a pre-agreed time. Loans can be repaid in stages or at the end of the loan period.
2. Business Angels- These are private investors who invest directly in a company in exchange for an equity stake and perhaps a place on the board.
3. Retained profits- Not all profits are distributed to shareholders: the company retains a proportion as reserves.



### 3.2. Determine funding scope.

1. Materials – materials such paper and pen will be used during the project's timeline.
2. Human resources- Project managers, developers, testers will be paid based on the number of hours they spent working on the project.
3. Contractual workers – Designers who will be given a fixed price of the work they have done.
4. Licenses – licenses are needed for hosting database and website.

## 4. PROJECT RISKS

### 4.1. Identify and analyse the project risks.

The project risks include like cost risks, project purpose and needs are not defined, project schedule is not clearly defined or understood, no control over staff, unplanned work that must be done, lack of communication, project conflicts not resolved in timely manner and theft of materials. The probability of risks are show on Table 1.

Table 1 - table of risk factors

No	Task name	Risk name	Probability (P, 1-10)	Impact (I, 1-10)	Score (P*I)
1.	Cost risks	The project can get too expensive	6	8	48
2.	Project purpose and need is not well-defined	This could lead to misunderstandings and that would impact total project duration.	4	4	16
3.	Project schedule is not clearly defined or understood	This could impact project duration	6	6	36
4.	No control over staff	This could lead to decrease in project quality and its duration	4	10	40

5.	Unplanned work that has to be done.	This would increase the duration of the project	5	10	50
6.	Lack of communication, causing lack of clarity and confusion	Lack of communication could reduce the quality of the project and its duration	6	10	60
7.	Project conflicts not resolved in a timely manner.	Bugs that are not resolved on time could push back other deadlines that need to be met.	7	10	70
8.	Theft of materials, intellectual property or equipment.	Theft of the property could cause company a lot of problems. This would not just push back the deadline itself, but would also need to cover new equipment expenses.	2	10	20

#### **4.2. Determine risk reduction measures.**

1. To reduce the cost of material, we will re-use the material. To reduce the cost of the project, we should cheaper software.
2. We should do meetings and talk over every single little bit of things.
3. Then use proper software, define the project schedule properly that everyone understands.
4. Pay them higher salaries. Or fire them if they keep misbehaving.
5. Should have some time allocated between deadlines to finish those unexpected tasks.
6. Have some more time allocated for these kinds of conflicts.
7. Always be prepared for these kinds of thefts and have proper insurance.

## **5. QUALITY MANAGEMENT**

#### **5.1. Determine project quality management.**

1. Consultation with the client – there will be consultation with the client to ensure that the client is satisfied with the requirement, design and result.
2. Meetings – in the meeting project manager will have a chance to inspect the work.
3. Testing – the project will be tested to ensure that website is going to work very smoothly.

## **6. PROJECT COMMUNICATION MANAGEMENT**

Project communication management will contain project status report where project team will review the potential status and delays. There will be also Team standup where each team member will discuss what they managed to do that day. The project communication management will also

contain Prototype review where the prototype will be shown to the client and discuss the changes that are needed to make. There will be task progress update that will be updated daily.

Table 2- Communication management plan

Communication	Frequency	Goal	Audience
Project status report.	Weekly	Review project status and discuss potential status and delays.	Project team and client.
Team standup	Daily	Discuss what each team did yesterday and what they'll do today.	Project team
Prototype review	At milestone	Show prototype to the client and discuss changes that need to be made.	Project manager, designer and client.
Task progress update	Daily	Share daily progress made on tasks	Project team

## 7.PROJECT SWOT ANALYSIS

### Strengths:

1. Low cost of structure
2. Optimized website
3. More focused on customer's satisfaction
4. Strong brand image.
5. Online presence.

### Weaknesses:

- 1.E-commerce website could be easily replicated.
- 2.Free shipping increasing cost.
- 3.Poor rankings for commercial keywords.
4. Preference of customers visiting shop personally.

### Opportunities:

1. Pandemic.
2. Increase of online shoppers.
3. Exponential growth
4. Million products to choose from.

Threats:

1. Rising competition.
2. Cyber security threat.
3. Low entry barriers of the industry.
4. Government legislation.

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