Project outline StudentScore

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3. Introduction

The term "Digitalisierung" (engl.: digitalization) has been dawning on us. In more than one way; the key word is appearing more often in the news (TV and paper) than it has ever before and an astonishing amount of processes are becoming digitally (optimized). To make something *digital*, however, does not mean the reengineering of the device to change its signals from analog to digital, but to incorporate processes into the vastly complex network of what is called the Internet of Things.

One industry who had to adapt because of the rise of technology is without a doubt the advertising industry. Newspapers are rapidly losing subscriptions, people prefer watching (newly created) services such as Netflix and Hulu instead over television. Media is shifting and since advertising is most effective at the pinnacle of global interest, advertising strategies need to shift too.

The team of StudentScore are convinced that social media marketing is the most effective way for a business to promote a new product or to improve public relations. However, often a business simply does not know how to get started on this *new endeavour.* There are no rules and default formats have not been established yet. This is where we come in - with a recipe for success!

4. Idea

StudentScore is a slick looking website that offers you a chance to determine how good you are as a student; a progressive idea on how to interact with your customers.

It could be posted on the university's Facebook or Twitter page. To interact with it, students merely have to click the link, be it on their smartphone, tablet or notebook.

What distinguishes it from a survey (which it could be seen as) or a common ad are the following:

- the interaction is kept light and easy going by using informal language as well as chat-like user interface design.
- the user is motivated to finish the quiz by giving him an incentive
- the answers that you give determine which question you will be asked next!
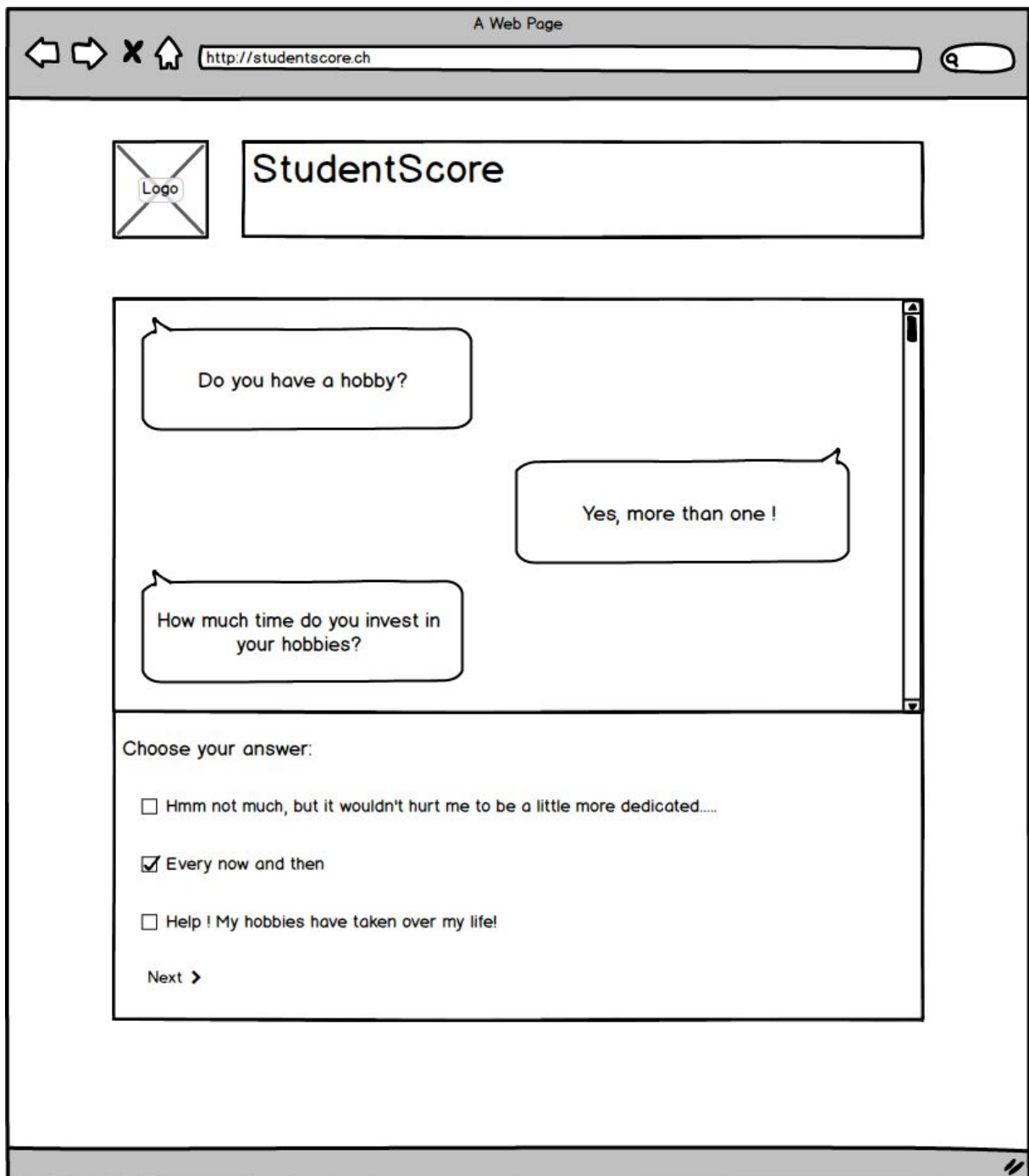
Figure 2: Mockup of the chat-like interaction

Figure 2 above shows an example of how such an interaction would look like.

5. Customer benefit

With this project the team hopes to provide the following benefits to the universities:

- New surveys and questionnaires can be easily created by uploading questions to the administration page of this product.

- For each question a variety of answer types such as single choice, multiple choice, a slider, etc. can be set to create a more diversified experience.

- Branches of questions can be created, so each answer can lead up to different questions.

- Because of the simple, chat-like interface this product is going to be attractive to a younger audience such as university students.

Whereas for the students, the team sees the following benefits with this project:

- The user is able to answer questions via chat-like interface, which is a more modern and playful way in comparison to old-fashioned surveys.

- The user can be given different questions based on the answers previously answered, which makes the experience more interactive.

- The user will be given useful tips and suggestions at the end of the survey based on their answers to improve their daily life.

- The questions can be answered anonymously (by choosing a username), so no email addresses or other form of verifications are required from the user.

6. State of the art / competition analysis

Our product's goal is to analyse the studying behaviour of students in a new way and to give them recommendations on how to improve.

The team assumes that, on average, students around the world have room for improvement in their studying habits, even if they have already been taught about common ways to study better once. In addition, it is assumed that there is a big enough interest for students to do self-assessments to see how well they fare and what their potential points of improvement could be. Furthermore, the team assumes that organisations such as schools or universities are aware of the benefits of self-assessments for students [1] and are therefore interested in using a tool such as StudentScore to fulfill their students' needs for self-reflection by engaging them with their own habits.

There already exist multiple websites that share general advice about the topic of studying free of charge. They try to show how one can improve their studying or how to recognise what kind of learning style is best suited for oneself [2]. The most similar rival products to StudentScore include websites such as Educationplanner.com [3] which are interactive and include a questionnaire that tries to measure how successful a student already is. The weak point of their questionnaire is that it is very limited in helpfulness as it only suggests adapting the habits listed in their own questionnaire. In addition, many of the competing websites promote scientifically questionable advice (learning styles), which is a point StudentScore aims to improve upon [4].

StudentScore aims to clearly distinguish itself from these kinds of websites by giving clear recommendations on which part of a student should focus on and by being a professional, reliable tool that can be used by institutions for their student body.
The team could not find any competing software that tries to achieve the same goal that StudentScore does.

7. Main use case

The main use case of StudentScore is the program asking a student questions repeatedly. Listed below the exact process flow of the main use case:

1. After arriving on the website the student sees a chat-like interface with a question asked by the program. A mockup of the chat-like interface can be found in Figure 2. The question has different options for answering. Depending on the question, the options of answering the question includes a slider, multiple choice or just a simple yes and no.
2. The student reads the question and selects one of the available answers.
3. The next question the student receives is based on their previous answers. For example, if the student answers yes to the question "Do you have a hobby?" the next question will probably be "How much time do you invest in your hobby / hobbies?"
4. Step two and three are repeated several times.
5. After the student has answered the last question, StudentScore calculates a score based on all the answers the student gave to the questions. The score indicates an evaluation of the student's habits.
6. Additionally to the score, the student sees some advice which is, similar to the score, based on the answers of all the questions.

Figure 3 below shows a mockup of what the student eventually sees if he reaches step five and six.
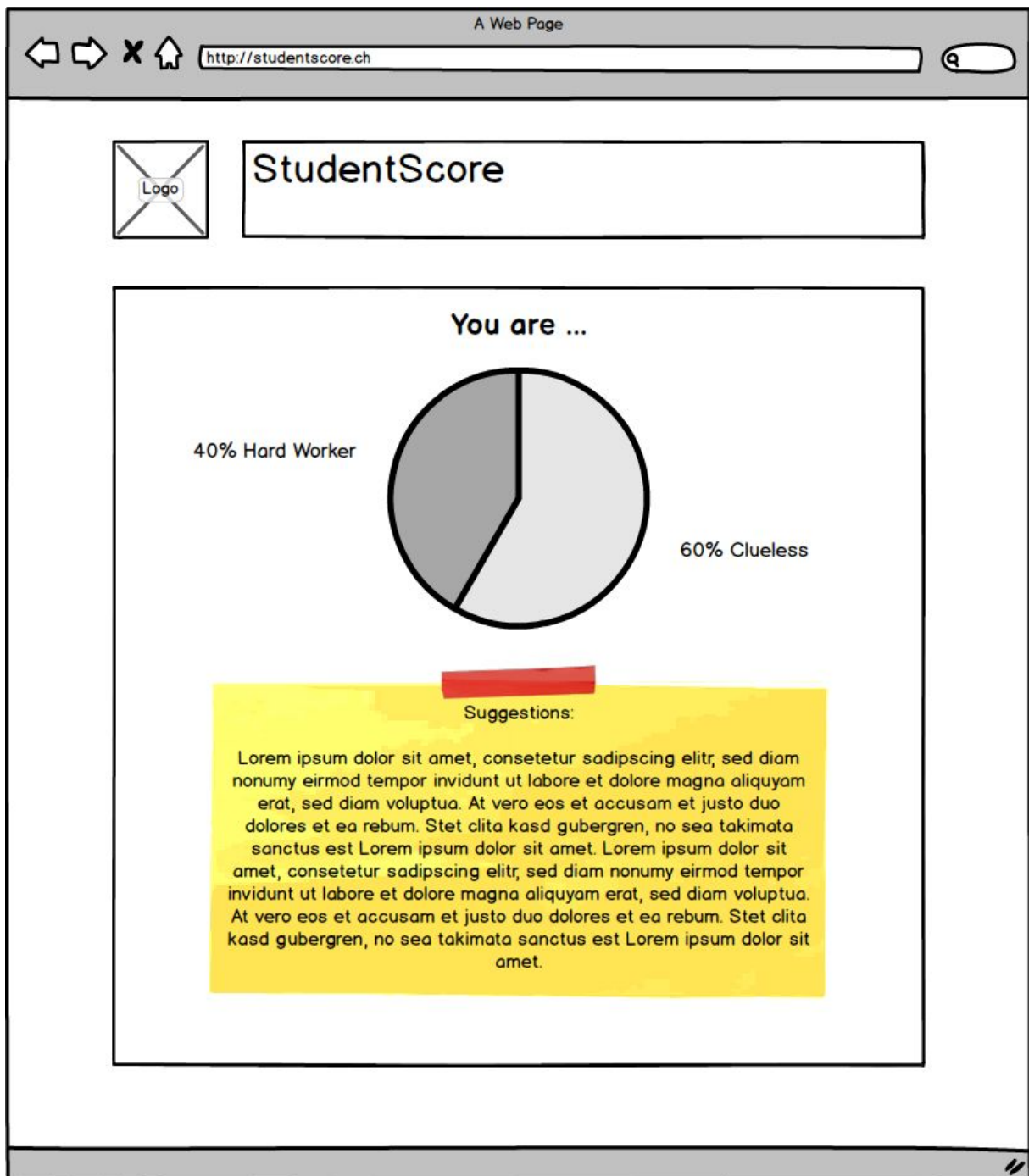
Figure 3: Mockup of the final score

8. Additional demands

For a fun and playful interaction between the student and StudentScore, it needs to have a diverting user interface. To make this product different from conventional surveys, the questions should be humorous and amusing with a chat-like interface to maximize the attractiveness of it. Moreover, the design should be kept simple for quick usability.

The score must be calculated with a minimal response time. The suggestions that are made according to the user's score should be professional and of good quality with reliable information. These features contribute to the effectiveness and efficiency of StudentScore and lead to the satisfaction of the customer.

9. Resources

For StudentScore to be a success, the team needs about six people working on the project. Two software architects, one software tester and three software engineers. The tools that the team needs for StudentScore are based on object oriented programming (OOP). All members of our team are familiar with OOP. Furthermore, the team needs a person experienced with web engineering. With Ryan Steiger and Timothé Laborie, there are two experts in the team that the others can ask for handy tips.

For the implementation of StudentScore, a bit of psychology understanding is needed because the program needs to score the student based on the answers a student gave. No one in the team is of psychological background, but the team is confident that a decent scoring and ranking system can be worked out.

The team calculated that the first version of StudentScore will take about 720 work hours. The team plans that other use cases which will not be worked on in the first version will take about another 1300 work hours. Overall, the total effort of the whole project is estimated to be about 2000 hours.

10. Risks

The team is certain that it can build a modern web application that can serve a basic questionnaire and display results from the gathered answers. Since the goal is to improve on this concept and develop a more complex, engaging, chat-like questionnaire, coming up with an intelligent and useful technical solution is not to be underestimated.
The team realises that it may fail to translate the knowledge about study habits from scientific publications into useful questions that can gather relevant information about students' study habits, since it is not clear, whether enough of the needed scientific data actually exists.

Furthermore, suggestions on how a student can improve might be too simple to warrant a complex questionnaire system that tries to identify problems in student's behaviour, since the best set of actions might be to just follow a rough set of rules (e.g. sleep enough, study early etc.). In this case, StudentScore would probably be only marginally better in efficacy of improving study habits than e.g. websites that host free collections of tips.

StudentScore could also not provide enough depth to our clients and be simply not appealing enough because common knowledge and the general information provided on the internet is deemed good enough for institutions such as schools, which could result in potential clients not seeing enough reasons to use our product. To counter this, the team should design StudentScore as innovative and appealing as possible to differentiate ourselves heavily from usual questionnaire-like websites.

Technologies such as new JavaScript frameworks might pose a challenge to parts of the development team, which might result in a higher development time. The team should be proactive in familiarising itself early with new technologies to avoid any slowdown in the project later on.

11. Rough planning

The project will be roughly planned for the first twelve weeks of the project. For the first version of the project, the team will work with the Unified Process (UP).

11.1 Use cases

For StudentScore following use cases are planned:

1. Determine username
2. Answering the questions given by the program (repeated several times)

    Admin panel:
1. Log into admin panel
2. Log out of admin panel
3. Import question file
4. Display most common path of questions asked (statistical purposes)

11.2 Rough project plan

Below is the rough planning of the first version of StudentScore.

Iteration #	Start	End	Goals
Milestone 1: Inception phase			
1	16.09.2019	30.09.2019	Project outline done. All tools needed ready to start with the project.
End of milestone 1			**Evaluation:** Stakeholder-agreement about the vision, goals and the requirements of the project. **Artefacts:** Project outline
Milestone 2: Elaboration phase			
2	30.09.2019	14.10.2019	Working out the questions which will be asked by the program. Mockup for the score site and mockup for the question site. 2-3 questions asked by the program to which the user can give an answer.
3	14.10.2019	28.10.2019	The questions asked are now based on the answer to the previous questions. This means the questions asked are chosen dynamically.
End of milestone 2			**Evaluation:** Vision, goals and requirements are stable. Verified code with documented software architecture **Artefacts:** Use-case-model, additional demands, domain model, documented software architecture, project management

Milestone 3: Construction			
4	28.10.2019	11.11.2019	User interface of the chat-like questioning on desktop, tablet and mobile. User can identify himself with a username.
5	11.11.2019	25.11.2019	Implementing the score system based on all the answers a student gave. Start with integration testing.
6	25.11.2019	09.12.2019	Read in a file with all the questions with the resultat that the questions asked do not have to be hard coded in the program. System testing.
End of milestone 3			**Evaluation:** Feature-complete, Beta-Release stable **Artefacts:** Code (incl. documentation), instruction manual, closing report

Table 1: Rough project plan of StudentScore

12. Profitability

All six members of the team are students. The estimated hourly cost per student is about CHF 50. As written above, the whole project needs an investment of about 2000 work hours. This means the total cost will roughly be CHF 100,000. There is no additional extra cost for the usage of the needed tools. All the tools used are available for free.

The plan is to sell the first version of the project to two to three small universities in Switzerland for a price of CHF 2 for a student. One example of a university which could be approached is the college of education in Zurich (PHZH). This college has about 3200 students. Therefore, the selling price to the PHZH would be about CHF 6400. After release, the team continues updating the project and about after a year larger universities would be approached. For example the Zurich University of Applied Sciences (ZHAW) which has about 18,000 students (selling price about CHF 36,000). While continuously updating in the first two years, eventually all universities in Switzerland would be approached. If all the universities bought our product, the product would have a count of about 250,000 students [5]. After the first two years, the plan is to sell StudentScore to universities outside of Switzerland. Obviously this means the team has to invest a small sum at this point because the program has to be translated into different languages and adjusted to varying cultures. Five years after the release the goal of StudentScore is that it is known at universities in at least ten countries in Europe and that the number of students using or used StudentScore will be about 200,000. This would mean a revenue of ca. 400,000 and a return on investment with the value of three.

13. References

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[5] Bundesamt für Statistik. (2018, September 10). *Szenarien 2018-2027 für die Hochschulen* [Online]. Available: https://www.bfs.admin.ch/bfs/de/home/statistiken/bildung-wissenschaft/szenarien-bildungssystem/hochschule-studierende.html [29.09.2019]