**R2.**

For R2 I’ve read 4 papers:

* Software Requirements and Specification
* Contextual Design
* Setting the scene
* Task Description as Functional Requirements

I’ve created an annotated bibliography below, describing the key points of ev (Holtzblatt)ery paper.

# Annotated Bibliography

**Jackson, Michael. *Software Requirements & Specification*. 1995.**

What Jackson describes is that the developing software is like building a machine. He looks at is as if the solution to the problem is the machine and the problem is the application domain. To see if this application is succesful, you look wat the outside world.

*What* the system does is to be sought in the application domain, while *how* it does it is to be sought in the machine.

The paper is divided in to Focusing on Problems, Domain Descriptions, Modelling and Desciription techniques. All are shortly described as follows. Focusing on Problems mainly states that we tend to focus on the solution because it is easier to find a pattern in it because we made the solution ourselves. It is harder to find patterons in the problems that we solve who lead to the patterns for the solution. So in general, in development a lot of the times one is focussed on the machine instead of the application domain which might be the reason the project will fail.

Domain Descriptions bescribes that that what everyone knows is often wrong and far from complete. You need to look at what is on the other side of the project flow because that is where the application domain is.

Modelling describes that some part of the machine is often a model of some part of the application domain. That means that there is some description both true of the machine and the application domain. But moddeling relationships are always incomplete. There is more to say about both the machien and the application domain.

**Holtzblatt, Hugh Beyer and Karen. *Contextual Design*. Bon Bishop, 1997.**

Contextual Design is a method that helps a crossfunctional team come to agreement on what their customers need and how to design a system for them. Data gathered from customers is the base criterion for deciding which needs to address, what the system should do, and how it should be structured. Design methods define a coherent series of actions that lead a team, we hope, to a well-designed system. Any design method must accommodate specific needs, needs of the problem, team and organizational system. Contextual design offers a useful framwork for tailoring a design process. Key notes that can be taken for contextual design are as follows:

* Contextual inquiry. Contextual inquiry reveals the details and motivatinos implicit in people’s work. It makes the customer and their work needs real to the designers. It introduces customer data as the basis for making decisions and creates a shared understanding of the data troughout the team. The design team conducts one on one interviews with customers in their workplace to discover the matters in the work. A team interpretation sessions lets everyone on the team bring their unique perspective to the data, sharing design, marketing and business implications.
* Work modeling. Work Modeling provides a language for talking about work that can be shared across the teams. It shows structure of work and makes data from interview coherent. It Grounds the team conversation in explicit representations. Design teams don’t see the intents, strategies and motivatinos of the work done by others that control how work is done. Work models show the work in individuals and organizations in diagrams. There are 5 different models that provide five perspectives on how work is done.
* Consolidation. Provides a map of the customer population. Makes sense of vast amounts of qualitative data quickly. Identifies the needs of the customer. Shows underlying structure of work across customers without losing variation and results in corporate data that can be reused by futere projects.
* Work Redesign. Focuses the team on improving work, not delivering techolology. It ensures that systems, business alliances and services fit into the customer’s overall work practice and it collects and integrates ideas from the whole team. It is portrayed in a vision, a story of how customers will do their work in the new world we invent. The team develops the details of this vision in storyboards, ‘freezeframe’ sketches showing scenarios of how people will work with the new system.
* User Environment Design. User Environment Design maintains coherence of the system from the user’s point of view. It captures the structure, function and flow of the system. Focuses the design team on what the system does, not the user interface or implementation and allows for planning and keeps team members focused on the whole system, not just their part. The User Environment Design shows the floor plan of the new system. It shows each part of the system, how it supports the user’s work, exactly what function is available in that part, and how the user gets to and from other parts of the system without – without trying this structure to any particular user interface.

**Lamsweerde, Axel van. *Requirements Engineering*. 2009.**

The first chapter of this books shows what Requirements Engineering exactly means. It explains that to understand what software solution solves a particular problem, one must first correectly understand and define what problems need to be solved. It returns on some facts written in the paper from Jackson. It explains that requirements engineering is concerned with the machine’s effect on the surrounding world and the assumptions we make about that world. Because of this, it is solely concerned wit hthe wolrd phenomena, including shared ones, not the machine penomena. Requirements and assumpptinos have their meaning in the problem world. In contrast, software design is concerned with machine phenomena.

Requirements engineering typically has the WHY, WHAT and WHO dimensions. The WHY dimension makes sure that the contexual reasons for a new version of a sytem must be made explicit in terms of objectives to be satisfied by it. The WHAT dimension is concerned with the functional services that the new version of the system should provide to satisfy the objectives identified along the WHY-dimension. At last, the WHO dimension addresses the assignment of the responsibilities for achieving the objectives, services and constraints among the componentsof the system-to-be – humans, devices or software.

There are 6 types of requirements namely: Functional requirements, Non-functional requirements, Quality requirements, Compliance requirements, Architectural requirements and Development requirements. Requirements can also overlap.

**Lauesen, Soren. *Task Descriptions as Functional Requirements*. IEEE Software, 2003.**

Old approaches of requirements engineering are often unsuitable because it seperates work between the computer and the user. With this approach one might find out later in the project that the thing stated in the requirement won’t work. Task based requirements could cover most of the functional requirements. They in general where the requirements are crucial. For example, a task description doesn’t cover quality requirements such as response time and usability, but they point out where quality is crucial.

Task based descriptions make sure that it does not divide the labor. This is a design issue to be dealt later with. Task based descriptions point out that human and computer carry out the task together.

Individual task descriptions looks in detail in one of the tasks from all the tasks stated at the work area description. It needs to look at the purpose of it, the trigger and precondition, frequency and critical, subtasks, variants and subtask frequency.

**Ex 1.**

*Make a proposal to engineer requirements for ideal online learning. Gat* (Lamsweerde)*her some ideas, discuss it with your fellow students, test some of the key concepts and work it out in a presentation form.*

Presentation can be found in Github week 1.

**Ex 2.**

*Look at your favourite interviewer, analyse their  interview tactics, try to apply these. Include some fragments of this interviewer in your report, and discuss what you like about him/her.*

My favorite interviewer would be Lex Fridman. Below are some examples why I think he is a good interviewer. These examples can all be found back in the following YouTube video. The interview is about Tesla and the interviewee is Elon Musk.

<https://www.youtube.com/watch?v=dEv99vxKjVI&ab_channel=LexFridman>

First of all I like that he gives short explanation about the interviewee in the beginning. In this case he explains who Elon Musk is and what his relation is between him and Elon Musk. He then proceeds to ask his opening question at 2:55. It is a very general and open question where Elon can elaborate a lot upon. I like this type of question, it gives a good opening to the interview.

Overall, he asks his questions in a very clear and understandable, relaxed way. They are que (Lauesen)stions which shows he knows he has interest in the topic he is interviewing about and he already knows some information about the company itself.

He also gives his own opinion about what Elon Musk tells about Tesla. He does this at 5:05. He basically adds up to what Elon Musk said and confirms that this is a good way to go, which creates a good atmosphere between the two.

**Ex 3.**

*Interview at least three fellow students in the context of the case “ideal online education”. Record it. Be sure to record the screens of the interviewer and interviewee. Make the recording available to the student group that will review you. Learn about interview tactics and good questions.*

All interview videos can be found on YouTube using the following link:

<https://www.youtube.com/playlist?list=PLGvDLdo6ruvxIGecChNHy4kbcAHKf0AmI>

**Ex 4.**

*Review the interviews of another student. First make explicit and motivate what aspects you will consider in your review. Make a short selection of fragments. Consisting of:*

*- 1 example of something you consider to be very good*

*- 1 example of something you consider that could be improved*

*- 1 example where you are in doubt how to go forward.*

The person of which I reviewed his interviews is Jeffrey. Jeffrey interviewed Tom, Arjen and Sven about how to improve the online educational system. Below I describe a few things which Jeffrey did very well and some things which might need to be implemented or improved.

First of all, what Jeffrey did very good was that he gave good opening questions both for Tom and Sven. This way he obtains the highest amount of information and the exact opinion from the interviewee. Since Arjen did not have a lot of experience in the field of online education, Jeffrey switched adjusted his question to if he could imagine a perfect example of online education. I think this was very well done.

Furthermore, he approves the answers of the interviewee by sayings things like “aha, yeh right, ok”. This gives a comfort feeling to the interviewees and points out that they are correctly answering the questions Jeffrey asked (Tom – 1:50, 2:00, 3:00, but also a lot in the other videos).

One last thing which is very much liked, was that Jeffrey tried to steer in a direction on which he preferably wanted an answer about with the interview with Sven. This happens at 1:15 where he asked more in to the social/interaction aspect of online education.

Two things Jeffery could improve in his interviewee skills are that he might consider writing down from time to time what the interviewee says. This will give him a good overview on good follow up questions, gives a feeling to the interviewee that he is listening carefully, helps you focus as well and it will help you summarize all answers. The other thing which I noticed is that sometimes you ask closed questions like at 3:27 and 3:53 in Arjen his interview. Try to keep the questions as open as possible to be able to retrieve the honest opinion and the highest amount of information you can get from the interviewee.

Overall, the interviews are done very well.

**Ex 5.**

*Make with all students a page with links to requirements documents for Corona apps from different countries. These should either be in English or Dutch.*

The page can be found in the following Google Documents link:

<https://docs.google.com/document/d/1u6IUTjyClg6BgeTIaZAXrhK2G_hl9F87RYOgBVDjTw4/edit#heading=h.cf2h3c5nrq7u>