

End of Year Report

SAP

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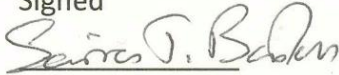
12th August 2016

DT228/3

Declaration A

I hereby certify that this report which I now submit for assessment to the School of Computing, Dublin Institute of Technology on the programme of study leading to the award of **Bachelor of Science (Hons) Computer Science** is entirely my own work and has not been submitted for assessment for any academic purpose other than in particular fulfilment for the stated above.

Signed



Saira J. Barlas

Date

12/08/16

Declaration B

I confirm that this report has been completed without breach of company confidentiality.

Signed



Mark Coonan

Signed



Etienne Guilhaume

Date

12/08/16

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1. Introduction

a. Overview of the industry placement

My industry placement has been highly positive. From the induction process which gave me a great insight into the company to a development position in Design Studio, I have found every day to be very enjoyable and rewarding. I have developed many features in different areas of Design Studio not to mention the key areas of Bookmarking and Export to PDF. These two areas are the most important topics in the Dublin Design Studio team. I have also gained immense experience in the technologies I have worked with. Interactions with team members and the different individuals in different departments, besides development, has made the placement even more pleasant.

b. Review of the overall placement process

I started my internship with SAP on 1st February 2016. The journey to get here has been exceptional and very rewarding. With all the preparations and classes that I attended during the 1st semester of third year and 2nd semester of second year, up to date I would consider them the important stepping stones for my current industry placement. The information I received in those classes and the information I gained through webcourses and extra links provided by Leslie Shoemaker have been superb. The material provided in regards to what an employer seeks and how to tailor an individual's CV were the most beneficial considering I had never created a professional CV before. The classes also involved the correction of a student's CV in comparison with the CV criteria provided and also in preparation for the question and answer sessions with an employer. I found the whole process to be very helpful and reliable. The only change I would consider would be to have more technical question preparation classes as this would boost the candidate's chances of a successful interview.

2. Company in Context

a. Description of the student and their role within the company

I obtained the role of a developer for Design Studio. The role involves developing features in Java and Javascript using Eclipse. Bookmarking and Export to PDF are the key areas I have worked in. I have made contributions to many other areas as well, old and new. Dealing with customer tickets and internal incidents has also been an attribute in regards to working as a developer. Consultation with jsPDF in regards to Export to PDF has also been a part of being a developer.

b. Discussion of the contributions made to the company

The major contributions I have made to the company would be in regards to the Design Studio product. I have developed features for Bookmaking and Export to PDF. I have also fixed bugs for any features which I have worked on and any features which the team considered me apt for. Dealing with any customer tickets and any internal incidents which required a fix have also been another area I have contributed to.

c. Brief review of the primary business of the company and their role within that business

SAP is a company which develops enterprise software for companies large and small. The part of SAP I am employed by is Business Objects, which SAP acquired. Design Studio is an SAP product which offers a design tool that allows an individual to create applications without the need for HTML etc.

3. Work Performed

a. Description of work undertaken showing how it relates to course work both theoretical and practical

Throughout my internship I have worked on many aspects and my course work has indeed aided me throughout. The two main topics which I have contributed to are Bookmarking and Export to PDF in Design Studio. Most of the development in Design Studio is accomplished using Java and Javascript via an Eclipse environment. The Objected Oriented Programming module in second year had been very useful considering much of the module was carried out in Eclipse. Java was also the language which was carried out in Object Oriented Programming and it has been highly beneficial as SAP uses it and I applied it heavily during work on the Bookmarking side of things. Gerrit is also another technology which is a place to submit code to and it is very similar to Git and GitHub which I was introduced to in Objected Oriented Programming module.

As Javascript is the second language which I have used to develop throughout my placement, the Web Development module from second year was a huge help. Web Development from first year also aided me as there were times where I required CSS and HTML knowledge. Javascript, HTML and CSS knowledge for Export to PDF was essential and these modules provided me the competence to carry the development work out for this topic. There were also times I had to write tests in Java and Javascript. The testing of code was theoretically addressed in the Software Engineering module in third year.

Many times throughout the placement, class diagrams and sequence diagrams were heavily mentioned and all three Software Engineering modules throughout my previous years have been extremely useful. Without having any understanding nor practical knowledge of these diagrams I would not be able to carry out my development work. The client and server models during Client Server Programming from third year has been beneficial in providing the knowledge for a client and server which I need when working with Export to PDF.

As I moved onto developing a completely new feature, I required the knowledge of the keyboard keycodes and the keyboard listener. Again, the Object Oriented Programming module aided me in regards to the keyboard, as I had previously worked in such an area while dealing with the language Processing.

b. You can review legal issues, IT issues, professionally issues relating to the company, privacy and confidentiality issues, methodologies used, processes and procedures, and the role of quality within development and delivery of services and/or products

Working in SAP has made me aware of confidentiality as being the utmost important. No confidential information should be leaked with third parties and no vital information should be exchanged outside the office/working hours. Privacy is very important in SAP. If any problems are experienced in SAP, all employees have access to a ticketing system. This is a system whereby employees can lodge tickets in relation to any issues, be it IT, professional, privacy and so on. I have used this system many times which and the problems are solved as soon as possible.

In regards to delivery of services and products, each department is different. In my development different, the delivery of products, such as Design Studio, varies heavily. A due date is set yet extensions are given.

c. Discuss technology learned including any project work undertaken

Development role is demanding and challenging. I began with being introduced to the code and the software which I would be working with and the product being Design Studio. Being introduced to the wiki pages which included tutorials of how to set up the developing environment and the relevant information for new hires. I was started off with looking through the code and familiarising myself with the layout and current programming regulations which SAP is used to.

The first few weeks were spent very much familiarising myself with Design Studio and the relevant Java and Javascript technologies. Developing features for Design Studio requires the use of Eclipse. Design Studio is generally used in producing business analysis applications by customers. There are currently two major topics which the Design Studio team in Ireland are currently concerned with; Bookmarking and Export to PDF. I was initially placed under Bookmarking yet I decided to move to Export to PDF as my interests lied there.

My initial contribution involved becoming accustomed to the code and refactoring the code which I was required to. As I became more experienced, I was given much more worthwhile work ranging from creating actual feature work (see Appendix 1) and downporting (see Appendix 2) code. I then worked on creating major feature work in regards to Export to PDF.

I was then gradually added into the Virtual Support Team. This is a newly created team where a few developers are picked and they deal with customer tickets only. They deal with all the incidents which the customers have faced while using Design Studio. I was able to experience two weeks of this team and made contributions by solving many tickets.

Currently I have been working on a new area completely in regards to Keyboard. I have been the first developer to work on this area and it's a big feature on its own. I have been using both Java and Javascript for this feature and everything has been developed from scratch.

d. A "Typical Day" Review of your typical day in the company, or identify how it has changed from the start to the end of the placement

A typical day in SAP involves attending the scrum and carrying out development work. As I started working in SAP, I was introduced to the scrum. I had never experienced a scrum before. Every morning all development teams hold a scrum whereby each person states the work they carried out during the previous day. I found attending a scrum to be very awkward at the start but as the days progressed I became more aware of how useful it was. If a team member had any problems or could not progress with their work, they would state it during the scrum to inform the team and the scrum master. After the scrum I would continue with my development work and/or attend meetings which I am needed for.

If the sprint was ending that day, then in the afternoon all the teams would have a review. This is where we would have a skype call with the Waldorf team in Germany to review the ending sprint and the features that were developed. Each team would demonstrate the feature work they have completed. The day after the review we would have planning as a new sprint would start and each member would be assigned their tasks for the coming sprint.

Throughout my placement this has been the norm and nothing has changed. Yet I have adapted myself around the scrum and have become more flexible and capable of multitasking. I've also become more responsible and more vocal in regards to my work and the daily happenings of the team and the work carried out.

4. Critical Analysis

a. Please evaluate progress towards the original goals of technical and soft skills and explain how you have arrived at these conclusions

In regards to soft skills I wanted to become more confident and people friendly. I feel as of now I am oozing with confidence and I have no restrictions. I used to become extremely anxious if I ever needed to ask for help but at this moment in time I feel no anxiety. I have become very outspoken especially in regards to providing ideas for others' work and contributing to other projects which I am not even responsible for. I have also formed peers in the other departments of SAP such as Finance and Support. Meeting various interns and especially international individuals has heightened my knowledge of the diverse people that make up SAP as a whole.

I feel I have evolved the most in my technical skills. I was recently given a task which required me to work in an area which I contributed to in the very early stages of SAP. I compared myself to how I handled that task before and now, and I can say my technical skills have seen a huge boost. My programming skills have now reached an acceptable company standard. Javascript has become second hand to me. Java on the other hand, a language which I was amateur at when I started out, has become polished. I was never a fan of Java but by now I consider myself as confident in Java as I am in Javascript.

As I near the end stages of my internship, all these improvements in my technical and soft skills lead me to consider development as definitely an option. I have always enjoyed working in SAP and if given the opportunity I would gladly work here again. I have also realised what form of development I would want to work in, UX Development seems to be very appealing. A full stack developer also is something I would like to aim for.

b. Have any of your original goals changed? Please explain how you arrived at this conclusion

Many of my original goals have been met as the internship gradually comes to a finish. I have thoroughly identified what a development position entails. It is an excellent and enjoyable profession which I see myself becoming a part of in the future. Secondly, working here for the past six months has helped me realise how one developer makes an impact in a global company. The tasks and the duties of a developer have become very clear and how demanding the job is. I have not encountered any shortfalls in regards to becoming a developer and have thoroughly enjoyed my position here as one.

I feel I have immensely grown as an individual and as a developer during my time here and have distinguished the advantages and disadvantages of a development position. My original goals of becoming an experienced confident developer have been met undoubtedly. Now the only goal which I consider myself aiming towards would be to seamlessly continue growing as a developer and gaining more experience. Hence I asked for an extension for my position and have been given one until 9th September 2016.

c. What technical skills have you gained during the last few months of work placement? How could these be applied to your future career? The final year of college?

The technical skills which I have gained would be proficiency in the languages of Java and Javascript. I have also gained an insight in how these languages can be integrated to work together. The product, Design Studio, for which I developed most of my features, has become second nature. It is a product which can be used to build business applications. Having experience of the aforementioned is an asset when seeking out a developer position in the future, considering these languages are used throughout and Design Studio is a product which many business enterprises use.

I have become an expert in writing code, developing applications from scratch, and testing the code written. These are advantageous skills when working on the final year project. Working here has also given me ideas in regards to what my final year project should be. The stages of development and the problems that can be encountered are another set of skills I have learnt which can be beneficial to the final year project. Experience with Java and Javascript has given me experience in how to write and develop code and the programming practices which should be adhered to. This is something I would consider an asset before the start of fourth year in college.

d. What soft skills have you gained on the last few months during work placement? How could these be applied to your future career? The final year of college?

I have become very vocal in regards to the work I have been carrying out. In the past, I was extremely shy and refrained from suggestions but now I see myself doing the complete opposite. My anxiousness in approaching individuals has greatly subsided and I have become more confident as a person as well as a programmer. A person needs to be social and engaging in order to integrate within a team. A person also needs to be able to voice the need for help when they need it. I feel, by working here, I've become more involved and more social.

Soft skills are highly wanted in any working environment. Being able to communicate the ideas and the thoughts of an individual is a major turning factor for a team and as a company as a whole. I feel my soft skills are up to a standard whereby I can be a key team player in any team in the future. The final year of college plays an important role and I feel I'll be more interactive with the other students than so before. Voicing my problems and concerns to lecturers would be easier and raising a question in the middle of a lecture would be simple.

e. What suggestions do you have to improve the quality and reliability of your work?

I would consider the work I have carried out to be of utmost high quality. The code reviews through Gerrit and the review of features makes sure that the features implemented in Design Studio adhere to the correct guidelines. Personally I would like to improve my work by being more diligent in what I write. I sometimes forget to double check and hence lose time when I end up debugging through the code. I have the habit of commenting my work yet SAP considers the code to speak for itself. Hence I refrain myself from adding comments into the code.

f. How has your role in the company evolved since you started the placement?

My role in the company has immensely evolved. When I started working I was greatly involved in the refactoring of Bookmarking and Export to PDF. These two topics are the key topics of Design Studio in the Dublin team. I developed features for these two topics and dealt with bugs and created tests around them. I used to be given simple tasks yet as I grew more experienced with each task, I started getting assigned more complex and more challenging work. I considered this as a great opportunity to branch out and experience all the different areas Design Studio has to offer.

I was also considered and asked to demonstrate my own work during the end of sprint review which was held every two weeks between all the Design Studio teams. When a new feature is developed, it also needs to be reviewed to be considered up to the Design Studio's standard. I would be the one responsible to demonstrate my work to the individuals who would be reviewing my implementation and asking me queries in regards to the feature. The reviews and the demonstration of my own work was a key factor when it came to boosting my confidence in my work and verbal skills.

I also was expected to book any meetings that would be required by me in relation to the team. As I grew experienced I was moved to other topics which I contributed to. I recently have been working on a new topic which was only assigned to me. I was the sole developer and was aided by my Product Owner. The confidence which I gained from being a sole developer on an area which no one had ever worked before made me realise how confident the team is in regards to my work and abilities.

g. How have you contributed to the company since you started the placement?

I have made many contributions since I started working in the company. Design Studio, being the product I mostly worked on, has made me realise how each individual makes a difference to the product. I started with creating features in regards to Export to PDF for Design Studio. As I grew more experienced, I was given the opportunity to contribute to Design Studio via Bookmarking. This gave me a different flavour when it came to switching areas for only one product. I learnt more as I switched areas rather than solely working on one area.

The building blocks of any area of Design Studio is similar, yet when it comes to the functionality, they are all different e.g. Bookmarking and Export to PDF are completely different. I was mostly amazed in regards to how everyone contributed to one single product yet worked together to bring the product to life and to the customers. I also contributed by fixing any bugs which were encountered and handling customer/internal incidents which came in.

Dealing with customer incidents in regards to Design Studio made me realise how big of a product Design Studio is. It also made me realise that every line of code I write is aiding the creation of such features which are in demand by the customers and are being used worldwide.

h. Review of how the experience has affected career plans and ambitions

The experience which I have gained in SAP up to now have drastically affected my career plans. I never wanted to be a developer before this internship. I never knew what a designer position entailed. I was very frightened by the thought of working as a developer especially since I was never confident in my skills. Yet after working here and experiencing all the pros and cons of being a developer, I can safely say I would be delighted to pursue my career in development. My ambition is to possibly work as a developer either in SAP or somewhere else in the future. I have also realised that developer is an umbrella term and there are many other forms of development which exist.

Java was never a language I was keen on. I never enjoyed it. When I started working in SAP I decided I wanted to code in Javascript for it was something I had a much positive experience in. After working in Javascript I was given the opportunity to try out Java and I haven't regretted my decision on agreeing to it. The love I have for Java and Javascript now have really increased my programming skills and has given me two sets of skills rather than one. I hope to pursue my career in Java or Javascript or any form of development. I now know what area and what profession I would ideally like to pursue and work in.

i. What skills may you currently be lacking or need to be worked on and the reasons for this

As I compare myself from a year back, I can safely say that I am very content in the boost of my programming skills which I have experienced since the months I have worked here. Yet I am still willing to gain more experience for learning is a gradual process. As a person I have grown immensely. My shyness and anxiety are no longer present and I have gained a certain confidence which makes me feel as if I am ready to work anywhere. The independence and the freedom that can be felt while working cannot be compared to anything else. Currently the only skills I would consider concentrating on would be to keep on gaining as much technical skills as possible, especially programming skills in regards to Java and Javascript.

j. Reflection on the benefit to the student and to the DIT of the placement

As a student I can say I have benefitted a lot from being on placement. I have gained a life changing experience during this placement. It has given me a huge insight in regards to what a company seeks when they hire. As I have already mentioned, working on a placement has also given me the right skills needed for a developer position. I now know the demands that a developer position entails and the pros and cons which come with it. As I had never experienced a working environment before, this placement made me realise what a regular employee can expect and how an international company functions. I have gained knowledge in regards to many other departments as well that interact with my development department.

I feel the placement has also given me a platform for applying all the skills which I gained from college. It has polished my skills and has expanded my knowledge when it comes to a development position. DIT would benefit by sending the students to placement and at times the students are asked to return after fourth year. The feedback provided to DIT in regards to the student interns can help DIT concentrate on the right areas to improve and what areas to aid the students during the preparation for placements and interviews. DIT can also aim to

prepare the students throughout the degree for the roles which a student can handle, be it any technical role.

k. Feedback on DIT on how the process can be improved and/or how students can benefit more from the experience

The process can be improved by aiding students in more technical questions. I prepared myself thoroughly for the technical questions yet many of the students complained that they were not aware of the questions that would be asked. Yet the preparation classes which were held during the two semesters were extremely beneficial in my opinion. I consider them to be another reason why I obtained the placement. The classes on CV preparation were highly informative and I found the interview classes to also be very knowledgeable. I have no complaints about the process as I found it to be an important stepping stone in gaining a placement. The preparation classes and the process for an internship is something I would consider as a flavour for a real interview after I complete my degree.

5. Conclusion

My internship experience can be summed up in one word: enjoyable. I have gained a great new insight in regards to myself and the work I am carrying out within SAP. I have also realised what a working environment entails and how different it is in regards to a college environment. The recruitment process had been a superb experience and the internship experience even better. The work which I have undertaken at SAP is practical work which is implemented into actual software. The new skills which I have gained while being at SAP have developed me as a person and hence have enhanced my productivity and contribution levels to the everyday work carried out. I feel the experience gained throughout this placement will be greatly applied into my future work. I also have come to a conclusion that development is indeed an interesting profession which I would definitely apply for in the future, be it in SAP or anywhere else.

6. Appendix I – supporting material

Appendix 1: Feature work is implementing a new functionality within the product.

Appendix 2: Downporting means to make the current code compatible with a lesser version.