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**C.A.T Internship Project**

*Presented by:*

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# **Appreciations**

I would like to thank all the people who contributed to the success of this project and who supported me during it.

I would like to thank my supervisor, Mr. George El Mur, for his patience, his availability and above all his judicious advice which contributed to the success of the project. Knowing that I am totally grateful for the support and encouragement he gave me.

Without forgetting the support of Mr.brahim who helped us to challenge ourselves during these past 3 years and gave us under difficult circumstances (protests, corona) a perfect learning environment . I am totally grateful as well for the help of the administration.

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# **Introduction**

## *Purpose of the report*

In this report I am going to introduce and explain what I learned from the internship that I did at the C.A.T group where, I was part of the ERP department working on a specific project for the HR one.

## *Motivation of the project*

The whole project idea and the learning phase was perfect because I got the chance to learn from professionals about the oracle database system and we can create procedures and packages that will be the key in a website. In another hand I learned a backend technology as well which is the PHP where I used it to be the key communication between front end and database.

## *Working phase:*

During the development of the project, I first started by finishing a book created by my manager talking about the oracle database. And each day he would give me an assignment to do for the next day so that he can be sure that I learned the principles the right way. After I completed the learning phase, he introduced me to the senior developer where he was responsible of helping me to create the website using html CSS bootstrap PHP linked to the oracle database.

# **­­­­Tools used**

1. **HTML**: The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser.
2. **CSS:** Cascading Style Sheets or CSS is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.
3. **PHP:** PHP is the backend technology I used to link between the front end (HTML, CSS) and the database (ORACLE DB)
4. **SQLDEVELOPER:** SQL DEVELOPER is the oracle database that I used to create the necessary procedures and function that I used for the website.
5. **VSCODE:** Vs code is an editor where I used it to write the html and the CSS and as well as the php code I used to link between the data I created on the database and the view created using html and CSS.

1. **Sprints Management**

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| **Work done for the 1st sprint**   * I was introduced to the SQL developer and I initialized the setup on my machine so that I can start testing query and later on to work on my project |

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| **Work done for the 2nd sprint**   * I learned the first 2 chapters of the book and I was given an assignment to make sure I did understand all the concept of these chapters |

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| --- |
| **Work done for the 4th sprint**   * I learned the also more chapters of the book and I was given an assignment to make sure I did understand all the concept of these chapters |

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| **Work done for the 3rd sprint**   * I learned the more chapters of the book and I was given an assignment to make sure I did understand all the concept of these chapters |

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| **Work done for the 5th sprint**   * Continued with the next chapters and I was given an assignment as well to test my learnings |

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| **Work done for the 6th sprint**   * Started to know more and more about the oracle system and started to design a website to implement it |

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| --- |
| **Work done for the 7th sprint**   * After finishing all of the chapters I started to create procedures that I used in the backend of my website |

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| **Work done for the 8th sprint**   * Lastly I ended up creating several procedures to help me insert delete and update employees into the website that I developed using html css, php and the oracle database |

# **Implementation Part**

## **Front-end**

## **Back-end**

## **Database**

The database that I used is the oracle database, since the start of the internship I was introduced to it’s concept, how does It works, where it is mostly used and why some people and industry does not use it and prefer another one. So first of all I started from very basic chapters. In Fact, I was just able to select query’s that helped me render data from specific tables. After completing all of the chapters. I started to create advanced query’s. let’s mention the creation of procedures. I created a procedure called INUP\_DEPT responsible for handelling the process of inserting data into the table and updating them based on a specific call from the backend of the website and also with the help of some if cases used in the database code. And here is an example of the INUP\_DEPT procedure.

**PROCEDURE INUP\_DEPT(WDEPTNO IN DEPT.DEPTNO%TYPE, WDNAME IN DEPT.DNAME%TYPE, WLOC IN DEPT.LOC%TYPE) IS**

**N INTEGER;**

**WMAX INTEGER;**

**BEGIN**

**N:=0;**

**BEGIN**

**SELECT COUNT(\*)**

**INTO N**

**FROM DEPT**

**WHERE DEPTNO=NVL(WDEPTNO,-1);**

**EXCEPTION**

**WHEN OTHERS THEN N:=0;**

**END;**

**IF N=0 THEN**

**-- INSERTING**

**WMAX:=0;**

**BEGIN**

**SELECT NVL(MAX(DEPTNO),0)**

**INTO WMAX**

**FROM DEPT;**

**EXCEPTION**

**WHEN OTHERS THEN WMAX:=0;**

**END;**

**BEGIN**

**INSERT INTO DEPT**

**VALUES((WMAX+5), WDNAME, WLOC);**

**COMMIT;**

**DBMS\_OUTPUT.PUT\_LINE('Success: Department :'||WDNAME||' created');**

**EXCEPTION**

**WHEN OTHERS THEN**

**DBMS\_OUTPUT.PUT\_LINE('Error: Cannot create Department due to : '||SQLERRM);**

**END;**

**ELSE**

**-- UPDATE**

**BEGIN**

**UPDATE DEPT SET DNAME=WDNAME, LOC=WLOC**

**WHERE DEPTNO=WDEPTNO;**

**COMMIT;**

**DBMS\_OUTPUT.PUT\_LINE('Department Successfuly UPDATED');**

**EXCEPTION**

**WHEN OTHERS THEN**

**DBMS\_OUTPUT.PUT\_LINE('ERROR: UNABLE TO UPDATE DEPT DUE TO '||SQLERRM);**

**END;**

**END IF;**

**END INUP\_DEPT;**

So in this procedure we can see that I have two actions in a specific case which are inserting new department into the dept table using the function insert where I am taking the maximum department number from the department table and adding to it 5 to create a new department with a new id, new department name and new location given as property to the function itself.

In another part the update part is used to just update the table department and set a new department name and a new location given in the query of the code.

After creating the insert and update procedures I still needed to create one for deleting departments when clicking a button on the website.

**PROCEDURE DELETE\_DEPT(WDEPTNO IN NUMBER) IS**

**BEGIN**

**BEGIN**

**DELETE DEPT**

**WHERE DEPTNO=WDEPTNO;**

**DBMS\_OUTPUT.put\_line('Department Successfuly deleted ');**

**COMMIT;**

**EXCEPTION**

**WHEN OTHERS THEN**

**DBMS\_OUTPUT.PUT\_LINE('Cant delete department because it contains employees may be due to ' || sqlerrm);**

**END;**

**END DELETE\_DEPT;**

So in this procedure I used the same concept as the other one but in this one it’s deleting departments rather than creating them or updating them. So the procedure will take a department Id as a property and the after the execution of the procedure the department in question will be deleted under one condition which is “the department shouldn’t contain any employee in it. If it does, it will fire an exception to let the user know what is wrong and help him and guide him to the solution.

After creating the fist two procedures for inserting updating and deleting department from the dept table. I used the same techniques to create the other procedures where they were responsible for inserting, updating and deleting employees into the employee table. And here is a small example of the procedure responsible for deleting employees

**PROCEDURE DELETE\_EMP(WEMPNO IN NUMBER) IS**

**A INTEGER;**

**BEGIN**

**BEGIN**

**SELECT COUNT(\*)**

**INTO A**

**FROM EMP**

**WHERE EMPNO=NVL(WEMPNO,-1);**

**EXCEPTION**

**WHEN OTHERS THEN A:=0;**

**END;**

**IF A=0 THEN**

**DBMS\_OUTPUT.PUT\_LINE('EMPLOYEE DOES NOT EXIST');**

**ELSE**

**BEGIN**

**DELETE EMP**

**WHERE EMPNO=WEMPNO;**

**DBMS\_OUTPUT.put\_line('EMPLOYEE Successfuly REMOVED ');**

**COMMIT;**

**EXCEPTION**

**WHEN OTHERS THEN**

**DBMS\_OUTPUT.PUT\_LINE('Cant REMOVE EMPLOYEE DUE TO ERROR ' || sqlerrm);**

**END;**

**END IF;**

**END DELETE\_EMP;**

So in this procedure first of all I am checking if there is any employee with the employee number given. If the employee does not exist then a specific variable will be null and an exception will be raised to inform the user that no employee with this this employee number exist. If the variable is not null, then the procedure will begin and will delete the employee in question with the help of the employee number passed as variable to the procedure.

Lastly, I created a packages of procedures which hold all of the procedure together and when I want to call any procedure from the backend, I would use call the package first then the function I want to use.

# **Conclusion**

In conclusion, during the whole semester we worked as a team of 4 including Ms. Marie Joe Chahine, starting from the very beginning, learning everything concerning the tools we needed to use. We were able to build a full responsive website using ReactJS for the front end development, NodeJS for the backend development and MongoDB which is a non-relational database for storing items and fetching them when needed. On the other hand, we were introduced to the concept of scrum methodology which is basically a way to work from planning the product, creating the backlog item, setting the tasks, Sprints, the daily standups and the sprint review at the end of each one. In fact, this forged our leadership skill and introduced us to a working experience. In the end