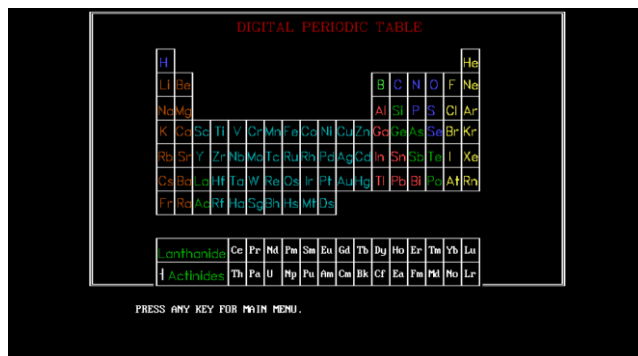# A
Project Report
On
"E-Periodic Table"

Prepared by
Varsh Patel(14CE107)
Shivam Patel(14CE105)
Mikin Patel(14CE098)

Under the guidance of
Prof. Amrin Shaikh

Submitted to

Charotar University of Science & Technology
Degree of Bachelor of Technology
in Computer Engineering
CE218.01 -Software Group Project
Of 3rd Semester of B.Tech

Submitted at

U. & P. U PATEL DEPARTMENT OF COMPUTER ENGINEERING

Faculty of Technology & Engineering, CHARUSAT

Chandubhai S. Patel Institute of Technology

At: Changa, Dist: Anand – 388421

November-December 2015

CERTIFICATE

This is to certify that the report entitled "**E-Periodic Table**" is a bonafied work carried out by **Mr Varsh Patel (14CE107)** under the guidance and supervision of **Prof. Amrin Shaikh** for the subject **Software Group Project (CE218.01)** of 3rd Semester of Bachelor of Technology in **Computer Engineering** at Faculty of Technology & Engineering (C.S.P.I.T.) – CHARUSAT, Gujarat.

To the best of my knowledge and belief, this work embodies the work of candidate himself, has duly been completed, and fulfills the requirement of the ordinance relating to the B.Tech. Degree of the University and is up to the standard in respect of content, presentation and language for being referred to the examiner.

Under the supervision of,

Prof. Amrin Shaikh
Assistant Professor
U. & P. U Patel Dept. of Computer Engg.
C.S.P.I.T., CHARUSAT-Changa.

Dr. (Prof.) Amit Ganatra
Dean,
Faculty of Technology & Engineering
Head, U. & P. U Patel Department of Computer Engineering
C.S.P.I.T., CHARUSAT- Changa, Gujarat.

14CE107

Abstract

This project is all about getting information and graphical representation of Modern Periodic Table which is developed in C++ using file and graphics. "E-Periodic Table" is a platform for chemistry students that can have useful information on any element from the table and can examine its characteristics. The graphical representation module makes it more handy and attracting, in which a student or user can see the whole modern periodic table visually and can even know about the Metals, Non-Metals, & Metalloids. Adding of information and editing any can be done by administration which is password protected for security purpose. Further extension to this project is "The Lab", this module is all about the elements taking part in various useful reactions of day-to-day life for a chemistry student. This project contains a game called "Bouncing Ball". The purpose of developing this system is to make a fun game. The game has a paddle which can be moved using mouse or keyboard. There will be three balls at the beginning of the game. The game ends when you lose all three balls. The score is displayed on the top right corner and the final score will be displayed at the end of game. User can restart the game by clicking the mouse or pressing enter.

Acknowledgement

I am thankful to our internal guide Prof. Amrin Shaikh from Charusat for her constant and valuable guidance at each and every stage of the project. I would like to thank my sister Ms Shrujal Patel who has been the key helper throughout the project and guidance. Special thanks to my parents who always believed in me and supported me with this project.

14CE107

INDEX

14CE107

CHAPTER 1: INTRODUCTION

1.1 Project Summary

This project is all about getting information on modern periodic table in palms of chemistry students and researcher. Characteristics and properties of any element from modern periodic table is already stored through file system in C++. Searching a Graphical representation are another such module in this project that can be b more handy and attractive while using this.

1.2 Purpose

Purpose of making this project is to ease work load on chemistry students and researchers who use modern periodic table daily.

1.3 Scope

This project has a new extension named "The Lab", in which a student or user can see the chemical reactions and various uses of bi-product obtained while making those reactions.

1.4 Objective

Objective is to learn Filing and Graphic library concepts in C++.

CHAPTER 2: PROJECT MANAGEMENT

2.1 Project Planning

2.1.1 Project Effort and Time

Together 3 students gave about 3.5 to 4 hrs per week for 3.5 months in making this project.

2.1.2 Roles and Responsibilities

The programmer has done analysis, coding, testing along with the data entry to the file for inserting valuable data with the useful properties of each element of modern periodic table to our E-Periodic Table. Designing of the project was also a main task that was hand fully taken care by the programmer.

CHAPTER 3: SYSTEM REQUIREMENTS STUDY

3.1 User Characteristics

User should know how to use a computer with the basics of C++ insert commands, as it is user-friendly so not much technical knowledge is required from computer and software point of view. But for using "The Lab", the user should have handful knowledge of chemical properties of element with their basic reactions.

3.2 Hardware and Software Requirements

The computer should have Windows operating system.

It should have Windows XP or higher with Turbo C++ installed and running.

512MB or higher RAM.

500MB of free hard disk space for filing purpose.

CHAPTER 4: CONCLUSION AND DISCUSSION

4.1 Self-Analysis of Project Viabilities

The project was a good way to learn about the filing in C++ with a new experience of learning "graphic.h" file on our own, as we created the project.

4.2 Problem Encountered and Possible Solutions

The first thing came on to mind was where all the data about regarding to particular element will be stored effectively in C++. So, for that we came up with the solution of filing concept.

Secondly, While using graphic.h in C++ we were stuck at a point whenever we use to use clrscr() in between of function it used to terminate the program as the graph initiated by console cannot be erased by clrscr(), So, for that we came up with the solution of using closegraph() after every module and initiate it ones again.

4.3 Summary of Project work

This is very handy software tool for chemistry students and researchers who uses modern periodic table more often, this can reduce their time and can be proved to be more effective than manual searching if elements in periodic table.

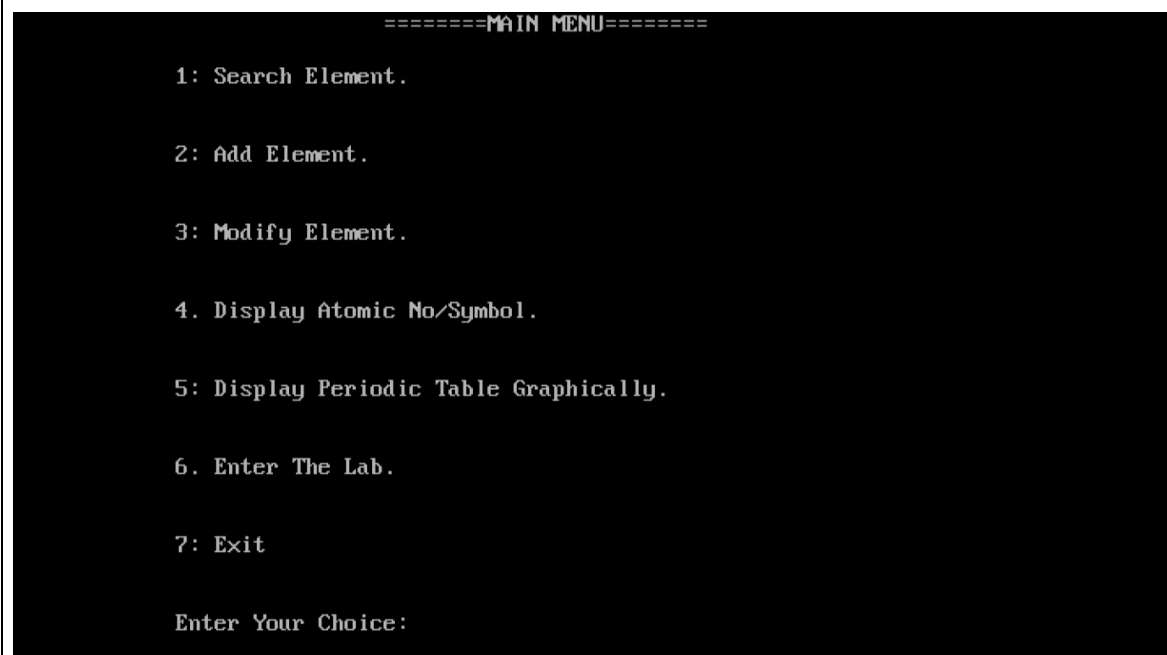# CHAPTER 5: LIMITATIONS AND FUTURE ENHANCEMENT

5.1 Limitations

Currently, this version is made with C++ and is using tradionation file system which is nowadays not used in real world. As traditional file system has many drawbacks as compared to database system management which is the alternative concept of traditional file systems.

5.2 Future Enhancement

For future, we are thinking of adding a new module expansion for "The Lab", in which the student of user can give multiple elements as input and can get desired chemical reactions if they exists and can be done with chemical equations and ionization property of particular given elements.

CHAPTER 6: SCREENSHOTS

WELCOME

TO

E – PERIODIC

TABLE

Press Any Key To Continue..

```
========MAIN MENU========

1: Search Element.

2: Add Element.

3: Modify Element.

4. Display Atomic No/Symbol.

5: Display Periodic Table Graphically.

6. Enter The Lab.

7: Exit

Enter Your Choice:
```

```
                    Enter Password: *******_
```

```
                    ===Add Element===

   Enter Atomic No: 1

   Symbol: H

   Enter Name: Hydrogen

   Enter Atomic Radius(in pm): 53

   Enter 1st Ionisation Potential(in J): 1312.0

   Enter ElectroNegativity: 2.20


   Do You Want To Add More Elements.?(Y/N)
```

DIGITAL PERIODIC TABLE

PRESS ANY KEY FOR MAIN MENU.

===Welcome To Laboratary===

Enter Atomic Number Of The Element For Reactions: 1

-->Hydrogen with air:
             2H2(g) + O2(g) -> 2H2O(l)

-->Hydrogen with water:
             Hydrogen does not react with water.

-->Hydrogen with halogens:
             2H2(g) + O2(g) -> 2H2O(l)

-->Hydrogen with acids:
             Hydrogen does not react with dilute acids.

-->Hydrogen with bases:
             Hydrogen does not react with dilute bases._

```
                    ===Welcome To Laboratary===


        Enter Atomic Number Of The Element For Reactions: 2


  -->Helium with air:
                Helium does not react with air, even under extreme conditions.

  -->Helium with water:
                Helium does not react with water.

  -->Helium with halogens:
                Helium does not react with any of the halogens.

  -->Helium with acids:
                Helium does not react with acids.

  -->Helium with bases:
                Helium does not react with any bases.
```

```
                    ===Welcome To Laboratary===


        Enter Atomic Number Of The Element For Reactions: 3


  -->Lithium with air:
                2Li(s) + O2(g) -> 2LI2O2(s)

  -->Lithium with water:
                2Li(s) + 2H2O -> 2LiOH(aq) + H2(g)

  -->Lithium with halogens:
                2Li(s) + F2(g) -> LiF(s)
                2Li(s) + CL2(g) -> LiCl(s)

  -->Lithium with acids:
                2Li(s) + H2SO4(aq) -> 2Li+(aq) + SO42-(aq) + H2(g)

  -->Lithium with bases:
                2Li(s) + 2H2O -> 2LiOH(aq) + H2(g)_
```

14CE107

BIBLIOGRAPHY:

http://www.webelements.com

http://www.wikipedia.org

http://www.chemwiki.ucdavis.edu

http://www.google.co.in