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**Department of IT**

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*of*

Under the Supervision

2K20/B10/24

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*Submitted by*

Information Technology

*in*

**Bachelor of Technology**

*the requirement for the award of the degree of*

*submitted towards the partial fulfilment of*

**MODERN PERIODIC TABLE**

on

`Project-I Report



Date:

Gulshan Bhati (2k20/b10/24)

Place: **Delhi**

I, Gulshan Bhati (2k20/b10/24) student of B. Tech. (Information Technology) hereby declare that the project Dissertation titled “MODERN PERIODIC TABLE” which is submitted by me to the IT Department, Delhi Technological University, Delhi in partial fulfilment of the requirement for the award of the degree of Bachelor of Technology, is original and not copied from any source without proper citation. This work has not previously formed the basis for the award of any Diploma Associateship, Fellowship or other similar title or recognition.

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Date:

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Place:

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I hereby certify that the project Dissertation titled “MODERN PERIODIC TABLE” which is submitted by Gulshan Bhati (2k20/b10/24) [PROGRAMING FUNDAMENTAL], Delhi Technological University, Delhi in complete fulfilment of the requirement for the award of the degree of the Bachelor of Technology, is a record of the project work carried out by the students under my supervision. To the best of my knowledge this work has not been submitted in part or full for any Degree or Diploma to this University or elsewhere.

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PROGRAMING FUNDAMENTALS



In this project of C language, we will be learning about the various conditional operators and by the help of them we will build a program which will tell the user about the periodic table properties of groups, periods or the elements according to the input provided by them.

ABSTRACT

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**I.T.**



opportunity to work on this topic.

Department, Delhi Technological University for giving us the

assignment. In addition, we would like to thank I.T.

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In performing our major project, we had to take the help and

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found on tracing the curve roughly.

limits of integration can be easily

area, volume and surface area. The

is helpful in finding the length of curve,

of plotting a large number of points. It

of curve tracing is to avoid the labour

using Cartesian form. The knowledge

properties of some standard curves

of tracing a curve in general and the

this Project we shall learn the methods

general nature of the given curve. In

revolution etc. we need to know the

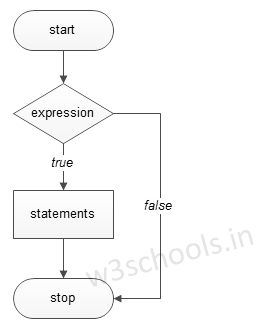
For evaluating areas, volumes of

INTRODUCTION

IMPORTANT CONCEPTS:

**Decision making in C**

C conditional statements allow you to make a decision, based upon the result of a condition. These statements are called **Decision Making Statements** or **Conditional Statements**.



C languages have such decision-making capabilities within its program by the use of following the decision-making statements:

1] If statements.

**2]** Go-to statements.

**3]** Switch statements.

In this project we will be using the **IF STATEMENTS** and **SWITCH STATEMENTS** for decision making as per the input provided by the user.

**IF-STATEMENTS: -**

If else statements in C is also used to control the program flow based on some condition, only the difference is: it's used to execute some statement code block if the expression is evaluated to true, otherwise executes else statement code block.

**Syntax: -**

if(test-expression)

{

//execute your code

}

else if(test-expression)

{

//execute your code

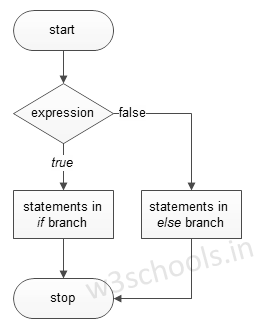
}

else

{

//execute your code

}

****

**Switch-case statements: -**

C switch statement is used when you have multiple possibilities for the if statement. Switch case will allow you to choose from multiple options. When we compare it to a general electric switchboard, you will have many switches in the switchboard but you will only select the required switch, similarly, the switch case allows you to set the necessary statements for the user.

**Syntax: -**

switch(variable)

{

case 1:

//execute your code

break;

case n:

//execute your code

break;

default:

//execute your code

break;

}

**Code: -**

#include<stdio.h>

void main()

{

int input=0;

printf("Choose any of the following option:\n 1) Search for element using atomic number.\n 2) Search for group.\n 3) Search for period.\n");

scanf("%d",&input);

if(input==1)

{ int num=0;

printf("Enter the element number:");

scanf("%d",&num);

switch (num+1)

{

case 2:

printf("The element is: Hydrogen(H)\n");

printf("Atomic mass = 2");

break;

case 3:

printf("The element is: Helium(He)\n");

printf("Atomic mass = 4");

break;

case 4:

printf("The element is:Lithium(Li) \n");

printf("Atomic mass = 6");

break;

case 5:

printf("The element is:Beryllium(Be) \n");

printf("Atomic mass =8 ");

break;

case 6:

printf("The element is:Boron(B) \n");

printf("Atomic mass =10 ");

break;

case 7:

printf("The element is:Carbon(C) \n");

printf("Atomic mass = 12");

break;

case 8:

printf("The element is:Nitrogen(N) \n");

printf("Atomic mass = 14");

break;

case 9:

printf("The element is:Oxygen(O) \n");

printf("Atomic mass = 16");

break;

case 10:

printf("The element is:Fluorine(F)\n");

printf("Atomic mass = 19");

break;

case 11:

printf("The element is:Neon(Ne) \n");

printf("Atomic mass =20 ");

break;

case 12:

printf("The element is:Sodium(Na) \n");

printf("Atomic mass =23 ");

break;

case 13:

printf("The element is:Magnesium(Mg) \n");

printf("Atomic mass = 24");

break;

case 14:

printf("The element is:Aluminium(Al) \n");

printf("Atomic mass =27 ");

break;

case 15:

printf("The element is:Silicon(Si) \n");

printf("Atomic mass =28 ");

break;

case 16:

printf("The element is:Phosphorus(P) \n");

printf("Atomic mass =31 ");

break;

case 17:

printf("The element is:Sulfur(S) \n");

printf("Atomic mass = 32");

break;

case 18:

printf("The element is:Chlorine(Cl) \n");

printf("Atomic mass =35.5 ");

break;

case 19:

printf("The element is:Argon(Ar) \n");

printf("Atomic mass =40 ");

break;

case 20:

printf("The element is:Potassium(K) \n");

printf("Atomic mass = 39");

break;

case 21:

printf("The element is: Calcium(Ca)\n");

printf("Atomic mass =40 ");

break;

case 22:

printf("The element is:Scandium(Sc) \n");

printf("Atomic mass =45 ");

break;

case 23:

printf("The element is:Titanium(Ti) \n");

printf("Atomic mass = 48");

break;

case 24:

printf("The element is:Vanadium(V) \n");

printf("Atomic mass =51 ");

break;

case 25:

printf("The element is:Chromium(Cr) \n");

printf("Atomic mass =52 ");

break;

case 26:

printf("The element is:Manganese(Mn)\n");

printf("Atomic mass =55 ");

break;

case 27:

printf("The element is:Iron(Fe)\n");

printf("Atomic mass =56 ");

break;

case 28:

printf("The element is:Cobalt(Co)\n");

printf("Atomic mass = 59");

break;

case 29:

printf("The element is: Nickel(Ni)\n");

printf("Atomic mass =58.6 ");

break;

case 30:

printf("The element is: Copper(Cu)\n");

printf("Atomic mass =63.5 ");

break;

case 31:

printf("The element is:Zinc(Zn) \n");

printf("Atomic mass =65.38 ");

break;

case 32:

printf("The element is:Gallium(Ga) \n");

printf("Atomic mass = 69.7");

break;

case 33:

printf("The element is:Germanium(Ge) \n");

printf("Atomic mass =72.6 ");

break;

case 34:

printf("The element is: Arsenic(As)\n");

printf("Atomic mass =75 ");

break;

case 35:

printf("The element is:Selenium(Se) \n");

printf("Atomic mass =79 ");

break;

case 36:

printf("The element is:Bromine(Br) \n");

printf("Atomic mass =80 ");

break;

case 37:

printf("The element is:Krypton(Kr) \n");

printf("Atomic mass =83.7 ");

break;

case 38:

printf("The element is: Rubidium(Rb)\n");

printf("Atomic mass = 85.4");

break;

case 39:

printf("The element is:Strontium(Sr) \n");

printf("Atomic mass =87.6 ");

break;

case 40:

printf("The element is: Yttrium(Y)\n");

printf("Atomic mass =89 ");

break;

case 41:

printf("The element is:Zirconium(Zr) \n");

printf("Atomic mass =91.2 ");

break;

case 42:

printf("The element is: Niobium(Nb)\n");

printf("Atomic mass =93 ");

break;

case 43:

printf("The element is:Molybdenum(Mo) \n");

printf("Atomic mass =99 ");

break;

case 44:

printf("The element is:Technetium(Tc) \n");

printf("Atomic mass =98 ");

break;

case 45:

printf("The element is:Ruthenium(Ru) \n");

printf("Atomic mass =101 ");

break;

case 46:

printf("The element is: Rhodium(Rh)\n");

printf("Atomic mass =103 ");

break;

case 47:

printf("The element is: Palladium(Pd)\n");

printf("Atomic mass =106.4 ");

break;

case 48:

printf("The element is: Silver(Ag)\n");

printf("Atomic mass =107.8 ");

break;

case 49:

printf("The element is:Cadium(Cd) \n");

printf("Atomic mass =112.4 ");

break;

case 50:

printf("The element is:Indium(In) \n");

printf("Atomic mass =114.8 ");

break;

case 51:

printf("The element is:Tin(Sn) \n");

printf("Atomic mass = 118.7");

break;

case 52:

printf("The element is:Antimony(Sb) \n");

printf("Atomic mass =121.7 ");

break;

case 53:

printf("The element is:Tellurium(Te) \n");

printf("Atomic mass = 127.6");

break;

case 54:

printf("The element is:Iodine(I) \n");

printf("Atomic mass = 127");

break;

case 55:

printf("The element is: Xenon(Xe)\n");

printf("Atomic mass =131.2 ");

break;

case 56:

printf("The element is: Caesium(Cs)\n");

printf("Atomic mass =132.9 ");

break;

case 57:

printf("The element is: Barium(Ba)\n");

printf("Atomic mass = 137.3");

break;

case 58:

printf("The element is:Lanthanum(La) \n");

printf("Atomic mass =139 ");

break;

case 59:

printf("The element is: Cerium(Ce)\n");

printf("Atomic mass =140.1 ");

break;

case 60:

printf("The element is:Praseodymium(Pr) \n");

printf("Atomic mass =141 ");

break;

case 61:

printf("The element is: Neodymium(Nd)\n");

printf("Atomic mass =144.2 ");

break;

case 62:

printf("The element is: Promethium(Pm)\n");

printf("Atomic mass =145 ");

break;

case 63:

printf("The element is: Samarium(Sm)\n");

printf("Atomic mass =150.3 ");

break;

case 64:

printf("The element is:Europium(Eu) \n");

printf("Atomic mass = 152");

break;

case 65:

printf("The element is:Gadolium(Gd) \n");

printf("Atomic mass =157.2 ");

break;

case 66:

printf("The element is: Terbium(Tb)\n");

printf("Atomic mass = 159");

break;

case 67:

printf("The element is: Dysprosium(Dy)\n");

printf("Atomic mass =162.5 ");

break;

case 68:

printf("The element is:Holmium(Ho) \n");

printf("Atomic mass =165 ");

break;

case 69:

printf("The element is: Erbium(Er)\n");

printf("Atomic mass = 167.2");

break;

case 70:

printf("The element is:Thulium(Tm) \n");

printf("Atomic mass =169 ");

break;

case 71:

printf("The element is: Ytterbium(Yb)\n");

printf("Atomic mass = 173");

break;

case 72:

printf("The element is: Lutetium(Lu)\n");

printf("Atomic mass =175 ");

break;

case 73:

printf("The element is: Hafnium(Hf)\n");

printf("Atomic mass = 178.4");

break;

case 74:

printf("The element is:Tantalum(Ta) \n");

printf("Atomic mass =181 ");

break;

case 75:

printf("The element is: Tungsten(W)\n");

printf("Atomic mass =183.8 ");

break;

case 76:

printf("The element is:Rhenium(Re) \n");

printf("Atomic mass =186.2 ");

break;

case 77:

printf("The element is:Osmium(Os) \n");

printf("Atomic mass =190.2 ");

break;

case 78:

printf("The element is:Iridium(Ir) \n");

printf("Atomic mass =192.2 ");

break;

case 79:

printf("The element is:Platinum(Pt) \n");

printf("Atomic mass = 195");

break;

case 80:

printf("The element is: Gold(Au)\n");

printf("Atomic mass =197 ");

break;

case 81:

printf("The element is: Mercury(Hg)\n");

printf("Atomic mass =200.5 ");

break;

case 82:

printf("The element is:Thalium(Tl) \n");

printf("Atomic mass = 204.4");

break;

case 83:

printf("The element is:Lead(Pb) \n");

printf("Atomic mass =207.2 ");

break;

case 84:

printf("The element is:Bismuth(Bi) \n");

printf("Atomic mass = 209");

break;

case 85:

printf("The element is:Polonium(Po) \n");

printf("Atomic mass = 209");

break;

case 86:

printf("The element is: Astatine(210)\n");

printf("Atomic mass =210 ");

break;

case 87:

printf("The element is: Radon(Rn)\n");

printf("Atomic mass = 222");

break;

case 88:

printf("The element is: Francium(Fr)\n");

printf("Atomic mass = 223");

break;

case 89:

printf("The element is: Radium(Ra)\n");

printf("Atomic mass = 226");

break;

case 90:

printf("The element is: Actinium(Ac)\n");

printf("Atomic mass =227 ");

break;

case 91:

printf("The element is: Thorium(Th)\n");

printf("Atomic mass =232 ");

break;

case 92:

printf("The element is: Protactinium(Pa)\n");

printf("Atomic mass = 231");

break;

case 93:

printf("The element is: Uranium(U)\n");

printf("Atomic mass =238 ");

break;

case 94:

printf("The element is: Neptunium(237)\n");

printf("Atomic mass =237 ");

break;

case 95:

printf("The element is:Plutonium(Pu) \n");

printf("Atomic mass =244 ");

break;

case 96:

printf("The element is:Americium(Am) \n");

printf("Atomic mass = 243");

break;

case 97:

printf("The element is: Curium(Cm)\n");

printf("Atomic mass =247 ");

break;

case 98:

printf("The element is:Berkelium(Bk) \n");

printf("Atomic mass = 247");

break;

case 99:

printf("The element is: Californium(Cf)\n");

printf("Atomic mass =251 ");

break;

case 100:

printf("The element is: Einsteinium(Es)\n");

printf("Atomic mass = 252");

break;

case 101:

printf("The element is:Fermium(Fm) \n");

printf("Atomic mass =257 ");

break;

case 102:

printf("The element is:Mendelevium(Md) \n");

printf("Atomic mass =258 ");

break;

case 103:

printf("The element is:Nobelium(No) \n");

printf("Atomic mass = 259");

break;

case 104:

printf("The element is: Lawrencium(Lr)\n");

printf("Atomic mass = 266");

break;

case 105:

printf("The element is:Rutherfordium(Rf) \n");

printf("Atomic mass = 267");

break;

case 106:

printf("The element is: Dubnium(Db)\n");

printf("Atomic mass =268 ");

break;

case 107:

printf("The element is:Seaborgium(Sg) \n");

printf("Atomic mass =269 ");

break;

case 108:

printf("The element is:Bohrium(Bh) \n");

printf("Atomic mass = 270");

break;

case 109:

printf("The element is:Hassium(Hs) \n");

printf("Atomic mass = 270");

break;

case 110:

printf("The element is: Meitnerium(Mt)\n");

printf("Atomic mass = 278");

break;

case 111:

printf("The element is: Darmstadtium(Ds)\n");

printf("Atomic mass =281 ");

break;

case 112:

printf("The element is:Roentgenium(Rg) \n");

printf("Atomic mass =282 ");

break;

case 113:

printf("The element is:Copernicium(Cn) \n");

printf("Atomic mass =285 ");

break;

case 114:

printf("The element is: Nihonium(Nh)\n");

printf("Atomic mass =286 ");

break;

case 115:

printf("The element is: Flerovium(Fl)\n");

printf("Atomic mass =289 ");

break;

case 116:

printf("The element is: Moscovium(Mc)\n");

printf("Atomic mass = 290");

break;

case 117:

printf("The element is: Livermorium(Lv)\n");

printf("Atomic mass = 293");

break;

case 118:

printf("The element is:Tennessine(Ts) \n");

printf("Atomic mass = 294");

break;

case 119:

printf("The element is: Oganesson(Og)\n");

printf("Atomic mass =294 ");

break;

default:

printf("Please enter number from 1 to 118\n");

break;

}

}

else if(input==2)

{

int j=0;

printf("Enter the group number:");

scanf("%d",&j);

if(j==1)

{

printf("This group is called as Alkali Metals \nValancy is 1\n");

}

else if(j==2)

{

printf("This group is called as Alkaline earth Metals \nValancy is 2\n");

}

else if(j>2 & j<=12)

{

printf("This group is called Tansition group.. \nValancy is 2\n");

}

else if(j>12 & j<=16)

{

printf("This group have metals and non-metals. \n");

}

else if(j==17)

{

printf("This group is called as Halogens \nValancy is 1");

}

else if(j==18)

{

printf("This group is called as Noble elements.\nValancy is 0\n");

}

else

{

printf("Please enter a value between 1-18\n");

}

}

else if(input==3)

{

int j=0;

printf("Enter the period number:");

scanf("%d",&j);

if(j==1)

{

printf("The 1 st period is the shortest period containing only 2 elements i.e. Hydrogen (H) and Helium (He). In this period, only the 1s orbital filled.\n");

}

else if(j==2)

{

printf("The 2nd period contain 8 elements from Lithium (Li) to Neon (Ne). In this period, the 2s and 2p orbitals are filled.\n");

}

else if(j==3)

{

printf("The 3rd period also contains 8 elements starting from Sodium (Na) to Argon (Ar). In this period, the 3s and 3p orbitals are filled.\n");

}

else if(j==4)

{

printf("The 4th period is the period, with 18 elements, starting from Potassium (K) to Krypton (Kr). In this period, 4s and 4p and also the 3d orbitals are filled.\n");

}

else if(j==5)

{

printf("The 5th period is also the long period with 18 elements, starting from Rubidium (Rb to Xenon (Xe). The 5s and 5p along with the 4d orbitals are filled.\n");

}

else if(j==6)

{

printf("The 6th period is the longest period with32 elements. It includes 14 elements belonging to the 4f series called lanthanides. In this period, the 6s and 6p along with the 4f and 5d orbitals are filled.\n");

}

else if(j==7)

{

printf("The 7th period is an incomplete period. It includes Fr along with the 14 elements belonging to the 5f series called actinides. In this period, the 7s,5f and 6d orbitals are filled.");

}

else

{

printf("Please enter a value from 1-7\n");

}

}

else

{

printf("Invalid option. Try again.");

}

}

**Conclution**

This project is good for beginners for learning basic concepts of decision-making statements and making a handy periodic table program that will easily give the properties of groups/periods/elements of modern periodic table.

**References**

**1]** [**https://www.w3schools.in/c-tutorial**](https://www.w3schools.in/c-tutorial)

**2] Modern periodic table**

**3] Let Us C ( by Yasavant Kanetkar )**

**4] Nitesh Mishra ( My friend )**

