C PROJECT

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/*
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ROLL NUMBER       : 23BIT097
DEPARTMENT        : B.Tech Information Technology
SUBJECT           : "C" Programming mini project
PROJECT TITLE     : Periodic Table
PROBLEM STATEMENT  : Write a program that input a element and gives
information on it
*/

#include <stdio.h>
void group1();
void group2();
void group3();
void group4();
void group5();
void group6();
void group7();
void group8();
void group9();
void group10();
void group11();
void group12();
void group13();
void group14();
void group15();
void group16();
void group17();
void group18();
void period1();
void period2();
void period3();
void period4();
void period5();
void period6();
void period7();

void main()
{
   int choice_for_group,choice_for_period;

   printf("\nEnter the group you want to learn: ");
   scanf("%d", &choice_for_group);
```

```
printf("\n1.group1");
printf("\n2.group2");
printf("\n3.group3");
printf("\n4.group4");
printf("\n5.group5");
printf("\n6.group6");
printf("\n7.group7");
printf("\n8.group8");
printf("\n9.group9");
printf("\n10.group10");
printf("\n11.group11");
printf("\n12.group12");
printf("\n13.group13");
printf("\n14.group14");
printf("\n15.group15");
printf("\n16.group16");
printf("\n17.group17");
printf("\n18.group18");

switch(choice_for_group)
{
   case 1:
   {
      group1();
      break;
   }
   case 2:
   {
      group2();
      break;
   }
   case 3:
   {
      group3();
      break;
   }
   case 4:
   {
      group4();
      break;
   }
   case 5:
   {
      group5();
      break;
   }
   case 6:
   {
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    group6();
    break;
}
case 7:
{
    group7();
    break;
}
case 8:
{
    group8();
    break;
}
case 9:
{
    group9();
    break;
}
case 10:
{
    group10();
    break;
}
case 11:
{
    group11();
    break;
}
case 12:
{
    group12();
    break;
}
case 13:
{
    group13();
    break;
}
case 14:
{
    group14();
    break;
}
case 15:
{
    group15();
    break;
}
```

```
    case 16:
    {
        group16();
        break;
    }
    case 17:
    {
        group17();
        break;
    }
    case 18:
    {
        group18();
        break;
    }
}

printf("\nEnter the period you want to learn: ");
scanf("%d", &choice_for_period);

printf("\n1.period1");
printf("\n2.period2");
printf("\n3.period3");
printf("\n4.period4");
printf("\n5.period5");
printf("\n6.period6");
printf("\n7.period7");

switch(choice_for_period)
{
    case 1:
    {
        period1();
        break;
    }
    case 2:
    {
        period2();
        break;
    }
    case 3:
    {
        period3();
        break;
    }
    case 4:
    {
        period4();
```

```
            break;
        }
        case 5:
        {
            period5();
            break;
        }
        case 6:
        {
            period6();
            break;
        }
        case 7:
        {
            period7();
            break;
        }
    }
}

void group1()
{
    int g1_ele;
    printf("\nThe group 1 elements are:\n ");
    printf("\n1. Hydrogen");
    printf("\n2. Lithium");
    printf("\n3. Sodium");
    printf("\n4. Potassium");
    printf("\n5. Rubidium");
    printf("\n6. Cesium");
    printf("\n7. Francium");

    printf("\nEnter which element you have to study about: ");
    scanf("%d",&g1_ele);

    switch(g1_ele)
    {
        case 1:
        {
            printf("\nPeriod - 1\nGroup - 1\nIt is the lightest and most abundant element in the
universe\n");
            break;
        }
        case 2:
        {
            printf("\nPeriod - 2\nGroup - 1\nIt is used in rechargeable batteries, particularly
lithium-ion batteries\n");
            break;
```

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        }
        case 3:
        {
            printf("\nPeriod - 3\nGroup - 1\nIt is the highly reactive metal and reacts vigorously
with water, producing hydrogen gas and a solution of hydrogen peroxide\n");
            break;
        }
        case 4:
        {
            printf("\nPeriod - 4\nGroup - 1\nIt plays a crucial role in various physiological
processes in living organisms, including nerve transmission and muscle contraction\n");
            break;
        }
        case 5:
        {
            printf("\nPeriod - 5\nGroup - 1\nIt is a soft, highly reactive metal and shares similar
properties with other alkali metals in group - 1\n");
            break;
        }
        case 6:
        {
            printf("\nPeriod - 6\nGroup - 1\nIt is known for it's extreme reactivity and it react
explosively with water\n");
            break;
        }
        case 7:
        {
            printf("\nPeriod - 7\nGroup - 1\nIt is highly radioactive and extremely rare alkali
metal.It has short half life, tiny amounts exist in nature and so challenging to study\n");
            break;
        }
    }
}

void group2()
{
    int g2_ele;

    printf("The group 2 elements are: ");
    printf("\n1. Beryllium");
    printf("\n2. Magnesium");
    printf("\n3. Calcium");
    printf("\n4. Strontium");
    printf("\n5. Barium");
    printf("\n6. Radium");

    printf("\nEnter which element you have to study about: ");
    scanf("%d",&g2_ele);
```

```
   switch(g2_ele)
   {
      case 1:
      {
         printf("\nBeryllium:\n\nPeriod - 2\nGroup - 2\nIt is the light weight, strong metal with high melting and melting points.\n");
         break;
      }
      case 2:
      {
         printf("\nMagnesium:\n\nPeriod - 3\nGroup - 2\nIt is essential element for liing organisms, playing a crucial role in various biological processes and being a component of chlorophyll in plants\n");
         break;
      }
      case 3:
      {
         printf("\nCalcium:\n\nPeriod - 4\nGroup - 2\nIt is vital for the formation and maintenance of strong bones and teeth in humans and animals\n");
         break;
      }
      case 4:
      {
         printf("\nStrontium:\n\nPeriod - 5\nGroup - 2\nIt's compounds are used in the production of red fireworks, as strontium ions emit a vibrant red colour when burned\n");
         break;
      }
      case 5:
      {
         printf("\nBarium:\n\nPeriod - 6\nGroup - 2\nIt has ability to absorb X-rays, making barium sulfate a contrast medium used in medical imaging, particularly in barium swallow tests\n");
         break;
      }
      case 6:
      {
         printf("\nRadium:\n\nPeriod - 7\nGroup - 2\nIt is Radioactive in nature and it was historically used for its luminescent properties in items like watch dials, although this practice has been largely discontinued due to health concerns\n");
         break;
      }
   }
}

void group3()
{
   int g3_ele;
```

```
    printf("The group 3 elements are: ");
    printf("\n1. Scandium");
    printf("\n2. Yttrium");
    printf("\n3. Lutetium");
    printf("\n4. Lawrencium");

    switch(g3_ele)
    {
        case 1:
        {
            printf("\nScandium:\n\nPeriod - 4\nGroup - 3\nIt has applications in aerospace as its alloys are used in the production of lightweight components for aircraft and sports equipment\n");
            break;
        }
        case 2:
        {
            printf("\nYttrium:\n\nPeriod - 5\nGroup - 3\nIt is used in the production of phosphorus, which are essential components in various electronic displays such as LED and CRT screens\n");
            break;
        }
        case 3:
        {
            printf("\nLutetium:\n\nPeriod - 6\nGroup - 3\nIt is used in cancer treatment, where lutetium-177 is employed in targeted radionuclide therapy for certain types of tumors\n");
            break;
        }
        case 4:
        {
            printf("\nLawrencium:\n\nPeriod - 7\nGroup - 3\nIt is a synthetic element, and due to it's high radioactivity and short half-life, it has no practical applications and is mainly studied for scientific research purposes\n");
            break;
        }
    }
}

void group4()
{
    int g4_ele;
    printf("The group 4 elements are: ");
    printf("\n1. Titanium");
    printf("\n2. Zirconium");
    printf("\n3. Hafnium");
    printf("\n4. Rutherfordium");

    switch(g4_ele)
```

```
    {
        case 1:
        {
            printf("\nTitanium:\n\nPeriod - 4\nGroup - 4\nIt has exceptional strength-to-weight
ratio, making it valuable in aerospace applications, as well as in medical implants and
various industrial uses\n");
            break;
        }
        case 2:
        {
            printf("\nZirconium:\n\nPeriod - 5\nGroup - 4\nIt has high corrosion resistence,
leading to its use in nuclear reactors for cladding fuel rods and in various chemical
processing applications\n");
            break;
        }
        case 3:
        {
            printf("\nHafnium:\n\nPeriod - 6\nGroup - 4\nIt has ability to absorb neutrons, making
it valuable in control rods for nuclear reactors and enhancing the properties of certain
alloys\n");
            break;
        }
        case 4:
        {
            printf("\nRutherfordium:\n\nPeriod - 7\nGroup - 4\nAs a synthetic element, it has a
short half-life and is primarily produced in laboratories for research purposes, with no
practical applications beyond scientific study\n");
            break;
        }
    }
}

void group5()
{
    int g5_ele;
    printf("The group 5 elements are: ");
    printf("\n1. Vanadium");
    printf("\n2. Niobium");
    printf("\n3. Tantalum");
    printf("\n4. Dubnium");

    switch(g5_ele)
    {
        case 1:
        {
            printf("\nVanadium:\n\nPeriod - 4\nGroup - 5\nIt has ability to exist in multiple
oxidation states, contributing to its various chemical applications\n");
            break;
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```
        }
        case 2:
        {
            printf("\nNiobium:\n\nPeriod - 5\nGroup - 5\nIt has high melting point and is often used in the production of superalloys for aerospace applications\n");
            break;
        }
        case 3:
        {
            printf("\nTantalum:\n\nPeriod - 6\nGroup - 5\nIt is frequently used in electronics, particularly in capacitors for its ability to store and release electrical energy efficiency\n");
            break;
        }
        case 4:
        {
            printf("\nDubnium:\n\nPeriod - 7\nGroup - 5\nDue to its synthetic nature and short half-life, dubnium's practical applications are limited, and it is primarily studied for research purposes in nuclear physics\n");
            break;
        }
    }
}
```