

Course “C Programing Language”

Topic: Introduction to the programming language “C”

Homework

Exercise 1.

Display one couplet of my favorite song using the escape sequences for formatting.

“Yesterday Once More”

```
#include <iostream>

using namespace std;

int main() {
    cout << "When I was young\n";
    cout << "I'd listen to the radio\n";
    cout << "Waitin' for my favorite songs\n";
    cout << "When they played I'd sing along\n";
    cout << "It made me smile.\n";
    return 0;
}
```

Exercise 2.

```
#include <iostream>

using namespace std;

int main() {
    cout << "Every " << endl;
    cout << "\thunter " << endl;
    cout << "\t\ttwants" << endl;
    cout << "\t\t\tto " << endl;
    cout << "\t\t\t\tknow... " << endl;
    return 0;
}
```

Exercise 3.

Write the advertisement for a sale and output it to the screen in that form.

```
#include <iostream>

int main() {
    std::cout << "Welcome to our Rottweiler Puppy Sale!\n\n"
    << "Don't miss out on the opportunity to bring home a lovable Rottweiler puppy! \n\n"
```

```

    << "Breed: Rottweiler\n\n"
    << "Our puppies are raised with love and care, ready to become a cherished part of
your family! \n\n"
    << "Call now to reserve your adorable Rottweiler puppy: 222-22-22 \n\n"
    << "Check out our available puppies below:\n\n"
    << "222 | 222 \n"
    << "22 | 22 \n"
    << "22 | 22 \n"
    << "22 | 22 \n"
    << "and so on...\n\n"
    << "Visit us today and find your new furry friend! \n\n"
    << "Hurry, these precious puppies won't last long! \n";

    return 0;
}

```

Exercise 4.

Three resistances R_1 , R_2 , R_3 are given. Calculate the value of the resistance R_0 according to the formula: $1 / R_0 = 1 / R_1 + 1 / R_2 + 1 / R_3$.

$$1/R_0 = 1/R_1 + 1/R_2 + 1/R_3$$

$$1/R_0 = (R_2 R_3 + R_1 R_3 + R_1 R_2) / R_1 R_2 R_3$$

$$R_0 = R_1 R_2 R_3 / (R_2 R_3 + R_1 R_3 + R_1 R_2)$$

$$R_0 = (2 * 4 * 8) / (4 * 8 + 2 * 8 + 2 * 4) = 64 / (32 + 16 + 8) = 1.142857$$

```

#include <iostream>
using namespace std;
int main(){
    float R1, R2, R3, R0;
    R1 = 2;
    R2 = 4;
    R3 = 8;
    R0 = (R1 * R2 * R3) / ((R2 * R3) + (R1 * R3) + (R1 * R2));
    cout << "R0 is " << R0 << endl;
    return 0;
}

```

Exercise_5

Given the length of a circle, calculate the area of a circle using the formula $S = \pi * R^2$, and calculate the radius from the formula of the length of a circle: $L = 2 * \pi * R$

```

#include <iostream>
using namespace std;
int main(){
    float S, R2, L, pi, R;
    pi = 3.14;
    S = pi * R2;

```

```

    R = L/2*pi;
    cout<<"Area of a circle is"<<S<<endl;
    cout<<"Radius is"<<R<<endl;
    return 0;
}

```

Exercise_6

Calculate the traveled distance for the rectilinear uniformly accelerated motion using a formula $S = v * t + (a * t^2) / 2$, where v - speed, t - time, and a - acceleration.

```

#include <iostream>
using namespace std;

int main(){
    // S traveled Distance, v Speed, t time, and a acceleation.
    float S, v, t, a;
    S = v*t+(a*t*t)/2;

    return 0;
}

```

Exercise_7

The user enters from the keyboard a distance to the airport and the time which he needs to get to the airport. Calculate at what speed he needs to go.

```

#include <iostream>
using namespace std;

int main(){
    // d is distance, t is time, v is speed.
    float d, t, v;

    cout<<"input time";
    cin>>t;
    cout<<"input speed";
    cin>>v;
    d= v/t;
    cout<<"The Distance to the airport is "<<d<< endl;
    return 0;
}

```

Exercise_8

The user enters from the keyboard a time of the commencement and completion of the call (hours, minutes and seconds). Calculate a cost of calls, if the cost of one minute is 30 cents.

```

#include <iostream>
using namespace std;

```

```

int main() {
    int starthour, startminute, startsecond;
    int endhour, endminute, endssecond;

    cout << "start hour ";
    cin >> starthour;
    cout << "start minute ";
    cin >> startminute;
    cout << "start second ";
    cin >> startsecond;
    cout << "End hour ";
    cin >> endhour;
    cout << "End minute ";
    cin >> endminute;
    cout << "End second ";
    cin >> endssecond;

    // convert hour and second to minute
    starthour = starthour * 60; // (1h=60mn)
    startsecond = startsecond / 60; // (60s=1mn)
    endhour = endhour * 60;
    endssecond = endssecond / 60;
    // calculated the call time
    double spendtime;
    spendtime = endhour - starthour + endminute - startminute + endssecond - startsecond;
    // calculation a cost of calls(1 minute is 30 cent)
    double cost_of_call;
    cost_of_call = spendtime * 30/100; //(1minute is 30 cent)

    cout << "The cost of call is: $" << cost_of_call << endl;

    return 0;
}

```

Exercise_9.

The user enters from the keyboard a distance, gasoline consumption per 100 km and a cost of three kinds of gasoline. Display a comparative table with a cost of travel using different types of gasoline.

```

#include<iostream>
using namespace std;

```

```

int main() {

    double distance, consumption_per_100Km, gasolin_consumption;

```

```

cout << "your distance is :";
cin >> distance;
cout << "consumption per Km is :";
cin >> consumption_per_100Km;
// gasoline consumption
gasolin_consumption = distance * consumption_per_100Km / 100;
// calculated the cost type of gasolin (total energy $2.5/L, PPT $2.45/L, Tela $2.40/L)
double total_energy, PTT, Tela;
total_energy = gasolin_consumption * 2.5;
PTT = gasolin_consumption * 2.45;
Tela = gasolin_consumption * 2.40;
//Display the Table;
cout << "\nComparative Table With the cost of traveling\n";
cout << ".....\n";
cout << "  Type of gasolin      |  Travel Cost of " << distance << endl << "\n";
cout << ".....\n";
cout << "  Total Energy          | $" << total_energy << endl;
cout << "  PTT                   | $" << PTT << endl;
cout << "  Tela                  | $" << Tela << endl;
cout << ".....\n";

return 0;
}

```

