

Homework 36

Topic: Introduction to the programming language "C++" (exercises 4 to 9)

```
//-----  
// File name: Exercise_4.cpp  
// Assign ID:  
// Due Date: 28/05/24 at 11pm  
//  
// Purpose: Calculate the value of the resistance R0  
//  
// Author: Mr. KEO Sopahnit  
//-----  
  
#include <iostream>  
#include <iomanip>  
using namespace std;  
  
int main () {  
    // 1. S: Store  
    float R0, R1, R2, R3;  
    R0 = 0.0;  
    R1 = 2.0;  
    R2 = 4.0;  
    R3 = 8.0;  
    // 2. I: Input  
  
    // 3. P: Perform Calculations  
    R0 = (R1*R2*R3) / ((R1*R2)+(R1*R3)+(R3*R2));  
  
    // 4. O: Output Display  
    cout<<"Test Example: R1 = "<<R1 <<" , R2 = "<<R2<<" , R3 = "<<R3<<" , R0  
= "  
    cout<<fixed<<setprecision(6)<<R0<<endl;  
    return 0;  
}
```

```

//-----
// File name: Exercise_5.cpp
// Assign ID:
// Due Date: 28/05/24 at 11pm
//
// Purpose: calculate the radius
//
// Author: Mr. KEO Sopahnit
//-----

#include <iostream>
#include <iomanip>
using namespace std;

int main (){
    // 1. S: Store
    float L, S, R;// L the leng of a circle, S the area, R the radius,
    const float PI = 3.14;
    L = 0;
    S = 0;
    R = 0;

    // 2. I: Input
    cout<<"The Lenght of the circle(meters): ";
    cin>>L;

    // 3. P: Perform Calculations
    R = L/2*PI;
    S = PI*R*R;
    // 4. O: Output Display
    cout<<"The Area of the circle is: "<<S<<" square meter"<<endl;
    cout<<"The Radius of the circle is: "<<R<<" meters" <<endl;

    return 0;
}

```

```

//-----
// File name: Exercise_6.cpp
// Assign ID:
// Due Date: 28/05/24 at 11pm
//
// Purpose: Calculate the traveled distance
//
// Author: Mr. KEO Sopahnit
//-----

#include <iostream>
using namespace std;

int main (){

    //1. S: Store
    double S, v, t, a; // S the traveled distance, v the speed, t the
time, a the acceleration.
    S = 1.0;
    v = 1.0;
    t = 1.0;
    a = 1.0;

    //2. I: Input
    cout<<"Enter speed (m/s), time (s), and acceleration (m/s2) : ";
    cin>>v>>t>>a;

    //3. P: Processing
    S = (v*t)+((a*t*t)/2);

    //4. O: Output
    cout<< "The Travel distance is: "<<S<<" meter"<<endl;

    return 0;
}

```

```

//-----
// File name: Exercise_7.cpp
// Assign ID:
// Due Date: 28/05/24 at 11pm
//
// Purpose: Calculate the speed
//
// Author: Mr. KEO Sopahnit
//-----

#include <iostream>
using namespace std;

int main (){

    //1. S: Store
    float D, t, v; //D distance to the airport, t time need to go to the
airport, v the speed he needs to go
    D = 1.0;
    t = 1.0;

    //2. I: Input
    cout<<"The distance to the airport is (Km): ";
    cin>>D;
    cout<<"The time need to go to the airport(h): ";
    cin>>t;

    //3. P: Processing
    v = D/t;

    //4. O: Output Display
    cout<< "The speed he needs to go to the airport is: "<<v<<"
Km/h"<<endl;

    return 0;
}

```

```

//-----
// File name: Exercise_8.cpp
// Assign ID:
// Due Date: 28/05/24 at 11pm
//
// Purpose: Time Conversion and Calculation
//
// Author: Mr. KEO Sopahnit
//-----

#include <iostream>
using namespace std;

int main (){

    //1. S: Store
    int H1, M1, S1, H2, M2, S2; //H, M, and S are hour, minutes, and
second respectively, 1 start, 2 end
    double spendTime, costOfcall;
    const int COST_PER_A_MINUTE = 50; // Cost per one minute 50 cents
    H1 = 1;
    H2 = 1;
    M1 = 1;
    M2 = 1;
    S1 = 1;
    S2 = 1;
    //2. I: Input
    cout<<"Enter the Start time (24h): ";
    cin>> H1>>M1>>S1;
    cout<<"Enter the End time (24h): ";
    cin>>H2>>M2>>S2;

    //3. P: Processing
    spendTime = (H2-H1)*3600 + (M2-M1)*60 + (S2-S1); // calculated and
convert to second
    costOfcall = spendTime * COST_PER_A_MINUTE/100; // calculated and
convert to USD

    //4. O: Output
    cout<< "Cost of call is: "<<costOfcall<<" USD"<<endl;

    return 0;
}

```

```

//-----
// File name: Exercise_9.cpp
// Assign ID:
// Due Date: 28/05/24 at 11pm
//
// Purpose: Display a comparative table with a cost of travel using
different types of gasoline.
//
// Author: Mr. KEO Sopahnit
//-----

#include <iostream>
#include <iomanip>
using namespace std;

int main(){

    //1. S: Store
    double distance, consumption, consumptionPer100Km, gasolinPrice1,
gasolinPrice2, gasolinPrice3, cost1, cost2, cost3;
    string gasolinType1, gasolinType2, gasolinType3;

    //2. I: Inpput
    cout<<"Enter a distance(in Km): ";
    cin>> distance;
    cout<<"Enter gasolin consumption per 10 km: ";
    cin>>consumptionPer100Km;

    //Type and Price of gasolin
    cout<< "Enter Type of gasolin: ";
    cin>>gasolinType1;
    cout<<gasolinType1<<"Price (riel): ";
    cin>>gasolinPrice1;

    cout<< "Enter Type of gasolin: ";
    cin>>gasolinType2;
    cout<<gasolinType2<<"Price (riel): ";
    cin>>gasolinPrice2;

    cout<< "Enter Type of gasolin: ";
    cin>>gasolinType3;
    cout<<gasolinType3<<"Price (riel): ";
    cin>>gasolinPrice3;

    //3. P: Process
    consumption = distance/consumptionPer100Km;
    cost1 = consumption*gasolinPrice1;
    cost2 = consumption*gasolinPrice2;
    cost3 = consumption*gasolinPrice3;

    //4. O: Output
    cout << "\n\nGasoline Type\t Price per Liter\tTotal Cost(riel)\n";
    cout << "-----\n";
}

```

```

cout << left << setw(15) << gasolinType1 << "    "
    << setw(15) << fixed << setprecision(2) << gasolinPrice1 << "
"
    << setw(10) << fixed << setprecision(2) << cost1 << endl;

cout << left << setw(15) << gasolinType2 << "    "
    << setw(15) << fixed << setprecision(2) << gasolinPrice2 << "
"
    << setw(10) << fixed << setprecision(2) << cost2 << endl;
cout << left << setw(15) << gasolinType3 << "    "
    << setw(15) << fixed << setprecision(2) << gasolinPrice3 << "
"
    << setw(10) << fixed << setprecision(2) << cost3 << endl;

return 0;
}

```