1- Create a set of pairs to store city names along with their corresponding postal codes. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء المدن مع الرموز البريدية المقابلة لها.
طباعة pairs التي تم فرزها.

## Input

```
Enter city name: London
Enter postal code: 12345
Enter city name: Paris
Enter postal code: 56789
Enter city name: NewYork
Enter postal code: 101010
```

## Output

```
Sorted Pairs:
London   Postal Code: 12345
NewYork Postal Code: 101010
Paris    Postal Code: 56789
```

## Solution

```cpp
// www.gammal.tech

#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, int>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, int> p;
        cout << "Enter city name: ";
        cin >> p.first;

        cout << "Enter postal code: ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, int>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << (*it).first << "\tPostal Code: " << (*it).second << endl;
    }

    return 0;
}
```

## 2- Create a set of pairs to store product names along with their unique identification numbers. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء المنتجات مع أرقام التعريف الفريدة الخاصة بها. طباعة pairs التي تم فرزها.

### Input

```
Enter product name: Laptop
Enter unique ID: 12345
Enter product name: smartPhone
Enter unique ID: 56789
Enter product name: smartWatch
Enter unique ID: 101010
```

### Output

```
Sorted Pairs:
Product ID: 12345    Product Name: Laptop
Product ID: 56789    Product Name: smartPhone
Product ID: 101010   Product Name: smartWatch
```

### Solution

```cpp
// www.gammal.tech

#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<int, string>> s;

    for(int i = 0; i < 3; i++) {
        pair<int, string> p;
        cout << "Enter product name: ";
        cin >> p.second;

        cout << "Enter unique ID: ";
        cin >> p.first;

        s.insert(p);
    }

    set<pair<int, string>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << "Product ID: " << (*it).first << "\tProduct Name: " << (*it).second << endl;
    }

    return 0;
}
```

3- Create a set of pairs to store employee names along with their employee IDs. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء الموظفين مع معرفات الموظفين الخاصة بهم. طباعة pairs التي تم فرزها.

Input

```
Enter employee name: John
Enter employee ID: 123
Enter employee name: Mary
Enter employee ID: 456
Enter employee name: Alex
Enter employee ID: 789
```

Output

```
Sorted Pairs:
Employee ID: 123    Employee Name: John
Employee ID: 456    Employee Name: Mary
Employee ID: 789    Employee Name: Alex
```

## Solution

```cpp
// www.gammal.tech

#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<int, string>> s;

    for(int i = 0; i < 3; i++) {
        pair<int, string> p;
        cout << "Enter employee name: ";
        cin >> p.second;

        cout << "Enter employee ID: ";
        cin >> p.first;

        s.insert(p);
    }

    set<pair<int, string>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << "Employee ID: " << (*it).first << "\tEmployee Name: " << (*it).second << endl;
    }

    return 0;
}
```

4- Create a set of pairs to store country names along with the number of inhabitants. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء البلدان مع عدد السكان. طباعة pairs التي تم فرزها.

## Input

```
Enter country name: China
Enter number of inhabitants: 14000000
Enter country name: India
Enter number of inhabitants: 1300000
Enter country name: USA
Enter number of inhabitants: 3310000
```

## Output

```
Sorted Pairs:
China    Number of Inhabitants: 14000000
India    Number of Inhabitants: 1300000
USA Number of Inhabitants: 3310000
```

## Solution

```cpp
// www.gammal.tech


#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, int>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, int> p;
        cout << "Enter country name: ";
        cin >> p.first;

        cout << "Enter number of inhabitants: ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, int>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << (*it).first << "\tNumber of Inhabitants: " << (*it).second << endl;
    }

    return 0;
}
```

5- Create a set of pairs to store car models along with their respective fuel efficiency (in miles per gallon). Print the sorted pairs.

قم بإنشاء set من pairs لتخزين نماذج السيارات مع كفاءة استهلاك الوقود الخاصة بها (بالأميال لكل جالون). طباعة pairs التي تم فرزها.

## Input

```
Enter car model: Toyota
Enter fuel efficiency (MPG): 30.5
Enter car model: Honda
Enter fuel efficiency (MPG): 35.2
Enter car model: Ford
Enter fuel efficiency (MPG): 25.8
```

## Output

```
Sorted Pairs:
Ford      Fuel Efficiency: 25.8 MPG
Honda     Fuel Efficiency: 35.2 MPG
Toyota    Fuel Efficiency: 30.5 MPG
```

## Solution

```cpp
// www.gammal.tech

#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, double>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, double> p;
        cout << "Enter car model: ";
        cin >> p.first;

        cout << "Enter fuel efficiency (MPG): ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, double>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << (*it).first << "\tFuel Efficiency: " << (*it).second << " MPG" << endl;
    }

    return 0;
}
```

# 6- Create a set of pairs to store movie titles along with their respective release years. Print the sorted pairs

قم بإنشاء set من pairs لتخزين عناوين الأفلام مع سنوات الإصدار الخاصة بها.
طباعة pairs التي تم فرزها

## Input

```
Enter movie title: Inception
Enter release year: 2010
Enter movie title: B
Enter release year: 1994
Enter movie title: Endgame
Enter release year: 2019
```

## Output

```
Sorted Pairs:
B    Release Year: 1994
Endgame Release Year: 2019
Inception   Release Year: 2010
```

## Solution

```cpp
// www.gammal.tech

#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, int>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, int> p;
        cout << "Enter movie title: ";
        cin >> p.first;

        cout << "Enter release year: ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, int>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << (*it).first << "\tRelease Year: " << (*it).second << endl;
    }

    return 0;
}
```

7- Create a set of pairs to store city names along with their respective average annual temperatures. Print the sorted pairs.

أنشئ set من pairs لتخزين أسماء المدن جنبًا إلى جنب مع متوسط درجات الحرارة السنوية لكل منها. طباعة pairs التي تم فرزها.

Input

```
Enter city name: Tokyo
Enter average annual temperature (Celsius): 17.5
Enter city name: Sydney
Enter average annual temperature (Celsius): 23.8
Enter city name: Tornto
Enter average annual temperature (Celsius): 8.2
```

Output

```
Sorted Pairs:
Sydney  Average Annual Temperature: 23.8°C
Tokyo   Average Annual Temperature: 17.5°C
Tornto  Average Annual Temperature: 8.2°C
```

## Solution

```cpp
// www.gammal.tech


#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, double>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, double> p;
        cout << "Enter city name: ";
        cin >> p.first;

        cout << "Enter average annual temperature (Celsius): ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, double>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << (*it).first << "\tAverage Annual Temperature: " << (*it).second << "°C" << endl;
    }

    return 0;
}
```

8- Create a set of pairs to store music genres along with the number of songs in each genre. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أنواع الموسيقى بالإضافة إلى عدد الأغاني في كل نوع. طباعة pairs التي تم فرزها.

## Input

```
Enter music genre: Pop
Enter number of songs: 50
Enter music genre: Rock
Enter number of songs: 30
Enter music genre: HipHop
Enter number of songs: 25
```

## Output

```
Sorted Pairs:
HipHop    Number of Songs: 25
Pop Number of Songs: 50
Rock      Number of Songs: 30
```

## Solution

```cpp
// www.gammal.tech


#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, int>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, int> p;
        cout << "Enter music genre: ";
        cin >> p.first;

        cout << "Enter number of songs: ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, int>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << (*it).first << "\tNumber of Songs: " << (*it).second << endl;
    }

    return 0;
}
```

9- Create a set of pairs to store animal names along with their average lifespan. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء الحيوانات مع متوسط عمرها. طباعة pairs التي تم فرزها.

## Input

```
Enter animal name: Elephant
Enter average lifespan (years): 60
Enter animal name: Turtle
Enter average lifespan (years): 100
Enter animal name: Dog
Enter average lifespan (years): 12
```

## Output

```
Sorted Pairs:
Dog Average Lifespan: 12 years
Elephant    Average Lifespan: 60 years
Turtle  Average Lifespan: 100 years
```

## Solution

```cpp
// www.gammal.tech

#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, int>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, int> p;
        cout << "Enter animal name: ";
        cin >> p.first;

        cout << "Enter average lifespan (years): ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, int>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << (*it).first << "\tAverage Lifespan: " << (*it).second << " years" << endl;
    }

    return 0;
}
```

10- Create a set of pairs to store fruit names along with their respective colors. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء الفاكهة مع الألوان الخاصة بها. طباعة
pairs التي تم فرزها.

## Input

```
Enter fruit name: Apple
Enter color: Red
Enter fruit name: Banana
Enter color: Yellow
Enter fruit name: Grape
Enter color: Purple
```

## Output

```
Sorted Pairs:
Fruit: Apple      Color: Red
Fruit: Banana     Color: Yellow
Fruit: Grape      Color: Purple
```

## Solution

```cpp
// www.gammal.tech

#include<iostream>
#include<set>
#include<string>
#include<utility>

using namespace std;

int main() {
    set<pair<string, string>> s;

    for(int i = 0; i < 3; i++) {
        pair<string, string> p;
        cout << "Enter fruit name: ";
        cin >> p.first;

        cout << "Enter color: ";
        cin >> p.second;

        s.insert(p);
    }

    set<pair<string, string>>::iterator it;

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++) {
        cout << "Fruit: " << (*it).first << "\tColor: " << (*it).second << endl;
    }

    return 0;
}
```