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1- Create a set of pairs to store names and phone numbers. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين الأسماء وأرقام الهواتف. طباعة pairs التي تم فرزها.

Input

```
Enter name: Bob
Enter number: 159
Enter name: Omar
Enter number: 753
Enter name: Charlie
Enter number: 357
```

Output

```
Sorted Pairs:
Bob 159
Charlie 357
Gammal Tech 123
Omar 753
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "Gammal Tech";
    p.second = 123;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter name: ";
        cin >> p.first;
        cout << "Enter number: ";
        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 << " " << (*it).second << endl;

    return 0;
}
```

---

2- Create a set of pairs to store product names and their prices. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء المنتجات وأسعارها. طباعة pairs التي تم فرزها.

## Input

```
Enter product name: Phone
Enter price: $200
Enter product name: Mouse
Enter price: $20
Enter product name: headPhone
Enter price: $50
```

Output

```
Sorted Pairs:
Laptop $899.99
Mouse $20
Phone $200
headPhone $50
```

Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "Laptop";
    p.second = 899.99;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter product name: ";
        cin >> p.first;
        cout << "Enter price: $";
        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 << " $" << (*it).second << endl;

    return 0;
}
```

---

## 3- Create a set of pairs to store names and their corresponding ages. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين الأسماء والأعمار المقابلة لها. طباعة pairs التي تم فرزها.

## Input

```
Enter person's name: Bob
Enter person's age: 20
Enter person's name: aly
Enter person's age: 15
Enter person's name: charlie
Enter person's age: 19
```

## Output

```
Sorted Pairs:
Alice Age: 25
Bob Age: 20
aly Age: 15
charlie Age: 19
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "Alice";
    p.second = 25;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter person's name: ";
        cin >> p.first;
        cout << "Enter person's age: ";
        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 << " Age: " << (*it).second << endl;

    return 0;
}
```

4- Create a set of pairs to store country names and their populations. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء البلدان وسكانها. طباعة pairs التي تم فرزها.

Input

```
Enter country name: China
Enter population: 1232548
Enter country name: India
Enter population: 1598543
Enter country name: Brazil
Enter population: 13697412
```

Output

```
Sorted Pairs:
Brazil Population: 13697412
China Population: 1232548
India Population: 1598543
USA Population: 331000000
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "USA";
    p.second = 331000000;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter country name: ";
        cin >> p.first;
        cout << "Enter population: ";
        cin >> p.second;
        s.insert(p);
    }

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

    cout << "Sorted Pairs:" << endl;
    for (it = s.begin(); it != s.end(); it++)
        cout << (*it).first << " Population: " << (*it).second << endl;

    return 0;
}
```

---

## 5- Create a set of pairs to store city names and their respective temperatures. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء المدن ودرجات الحرارة الخاصة بها.
طباعة pairs التي تم فرزها.

## Input

```
Enter city name: Paris
Enter temperature (in Celsius): 18.5
Enter city name: Sydney
Enter temperature (in Celsius): 29.8
Enter city name: Tokyo
Enter temperature (in Celsius): 26.3
```

## Output

```
Sorted Pairs:
Paris Temperature: 18.5°C
Sydney Temperature: 29.8°C
Tokyo Temperature: 26.3°C
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "Paris";
    p.second = 18.5;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter city name: ";
        cin >> p.first;
        cout << "Enter temperature (in 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 << " Temperature: " << (*it).second << "°C" << endl;

    return 0;
}
```

---

## 6- Create a set of pairs to store programming languages and their popularity ranks. Print the sorted pairs.

قم بإنشاء مجموعة من الأزواج لتخزين لغات البرمجة وتصنيفاتها الشعبية. طباعة الأزواج التي تم فرزها.

## Input

```
Enter programming language: Java
Enter popularity rank: 2
Enter programming language: JavaScript
Enter popularity rank: 4
Enter programming language: Python
Enter popularity rank: 1
```

## Output

```
Sorted Pairs:
C++ Popularity Rank: 3
Java Popularity Rank: 2
JavaScript Popularity Rank: 4
Python Popularity Rank: 1
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "C++";
    p.second = 3;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter programming language: ";
        cin >> p.first;
        cout << "Enter popularity rank: ";
        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 << " Popularity Rank: " << (*it).second << endl;

    return 0;
}
```

7- Create a set of pairs to store animal names and their average lifespan. Print the sorted pairs.

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

Input

```
Enter animal name: Lion
Enter average lifespan: 20.7
Enter animal name: Turtle
Enter average lifespan: 150
Enter animal name: Elephant
Enter average lifespan: 60.5
```

Output

```
Sorted Pairs:
Elephant Average Lifespan: 60.5 years
Lion Average Lifespan: 20.7 years
Turtle Average Lifespan: 150 years
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "Elephant";
    p.second = 60.5;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter animal name: ";
        cin >> p.first;
        cout << "Enter average lifespan: ";
        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 << " Average Lifespan: " << (*it).second << " years" << endl;

    return 0;
}
```

---

## 8- Create a set of pairs to store car models and their fuel efficiency. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين نماذج السيارات وكفاءتها في استهلاك الوقود.
طباعة pairs التي تم فرزها.

## Input

```
Enter car model: Honda Civic
Enter fuel efficiency (in mpg): 35.6
Enter car model: Tesla
Enter fuel efficiency (in mpg): 53.5
Enter car model: Ford Mustang
Enter fuel efficiency (in mpg): 22.1
```

Output

```
Sorted Pairs:
Ford Mustang Fuel Efficiency: 22.1 mpg
Tesla Fuel Efficiency: 53.5 mpg
Toyota Prius Fuel Efficiency: 50.2 mpg
onda Civic Fuel Efficiency: 35.6 mpg
```

Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "Toyota Prius";
    p.second = 50.2;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter car model: ";
        cin.ignore();
        getline(cin, p.first);
        cout << "Enter fuel efficiency (in 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 << " Fuel Efficiency: " << (*it).second << " mpg" << endl;

    return 0;
}
```

---

9- Create a set of pairs to store country names and their respective capitals. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين أسماء البلدان وعواصمها. طباعة pairs التي تم فرزها.

## Input

```
Enter country name: Japan
Enter capital: Tokyo
Enter country name: Germany
Enter capital: Berlin
Enter country name: Brazil
Enter capital: Brasilia
```

## Output

```
Sorted Pairs:
Country: Brazil, Capital: Brasilia
Country: France, Capital: Paris
Country: Germany, Capital: Berlin
Country: Japan, Capital: Tokyo
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "France";
    p.second = "Paris";
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter country name: ";
        cin >> p.first;
        cout << "Enter capital: ";
        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 << "Country: " << (*it).first << ", Capital: " << (*it).second << endl;

    return 0;
}
```

10- Create a set of pairs to store book titles and their respective publication years. Print the sorted pairs.

قم بإنشاء set من pairs لتخزين عناوين الكتب وسنوات النشر الخاصة بها.
طباعة pairs التي تم فرزها.

## Input

```
Enter book title: B
Enter publication year: 2005
Enter book title: V
Enter publication year: 2009
Enter book title: O
Enter publication year: 2000
```

## Output

```
Sorted Pairs:
B Publication Year: 2005
O Publication Year: 2000
To Kill a Mockingbird Publication Year: 1960
V Publication Year: 2009
```

## Solution

```cpp
// www.gammal.tech


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

using namespace std;

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

    p.first = "To Kill a Mockingbird";
    p.second = 1960;
    s.insert(p);

    for (int i = 0; i < 3; i++) {
        cout << "Enter book title: ";
        cin >> p.first;
        cout << "Enter publication 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 << " Publication Year: " << (*it).second << endl;

    return 0;
}
```