**Thread**

請將1.程式**執行結果**截圖置入作業中、2.**程式原始檔**置入作業中

請參考投影片內容，編寫下列程式

1. 以繼承類別方式設計一個多執行緒程式（修改ex13\_01.java），當中包含四個物件如下。

|  |
| --- |
| CDinner Soup = new CDinner("湯");  CDinner Salad = new CDinner("沙拉");  CDinner Entree = new CDinner("主菜");  CDinner Dessert = new CDinner("甜點"); |

完成程式，使得透過多執行緒執行下列CDinner類別的serving()函式（food為CDinner類別的一個成員，可於類別建構子中設定），而印出字串。（印出順序前，請讓執行緒休眠0~1秒鐘）

|  |
| --- |
| private void serving()  {  System.out.println("上菜:" + food);  } |

每次執行結果都可能印出不同的順序如下：

|  |  |
| --- | --- |
| **執行結果1：** | **執行結果2：** |
| |  | | --- | | 上菜:沙拉  上菜:湯  上菜:主菜  上菜:甜點 | | |  | | --- | | 上菜:湯  上菜:主菜  上菜:沙拉  上菜:甜點 | |
|  |  |

import java.lang.\*;

import java.io.\*;

public class ex13\_01

{

public static void main(String args[])

{

String str1=new String();

CDinner Soup = new CDinner("湯");

CDinner Salad = new CDinner("沙拉");

CDinner Entree = new CDinner("主菜");

CDinner Dessert = new CDinner("甜點");

Soup.start();

Salad.start();

Entree.start();

Dessert.start();

}

}

class CDinner extends Thread

{

String food;

public CDinner (String str)

{

food =str;

}

private void serving()

{

System.out.println("上菜:" + food);

}

public void run()

{

try

{

sleep(100);

}

catch(InterruptedException e){}

serving();

}

}

1. 使用join()改寫第1題，使得第1題的執行結果印出順序必定如下：

**執行結果：**

|  |
| --- |
| 上菜:湯  上菜:沙拉  上菜:主菜  上菜:甜點 |



import java.lang.\*;

import java.io.\*;

public class ex13\_01

{

public static void main(String args[])

{

String str1=new String();

CDinner Soup = new CDinner("湯");

CDinner Salad = new CDinner("沙拉");

CDinner Entree = new CDinner("主菜");

CDinner Dessert = new CDinner("甜點");

try

{

Soup.start();

Soup.join();

Salad.start();

Salad.join();

Entree.start();

Entree.join();

Dessert.start();

Dessert.join();

}

catch(InterruptedException e){}

}

}

class CDinner extends Thread

{

String food;

public CDinner (String str)

{

food =str;

}

private void serving()

{

System.out.println("上菜:" + food);

}

public void run()

{

try

{

sleep(100);

}

catch(InterruptedException e){}

serving();

}

}

1. 承上題，改以實作介面方式完成。（提示：sleep()為static方法）



import java.lang.\*;

import java.io.\*;

public class ex13\_01

{

public static void main(String args[])

{

String str1=new String();

CDinner Soup = new CDinner("湯");

CDinner Salad = new CDinner("沙拉");

CDinner Entree = new CDinner("主菜");

CDinner Dessert = new CDinner("甜點");

Thread Soup2 = new Thread(Soup);

Thread Salad2 = new Thread(Salad);

Thread Entree2 = new Thread(Entree);

Thread Dessert2 = new Thread(Dessert);

Soup2.start();

Salad2.start();

Entree2.start();

Dessert2.start();

}

}

class CDinner implements Runnable

{

String food;

public CDinner (String str)

{

food =str;

}

private void serving()

{

System.out.println("上菜:" + food);

}

public void run()

{

try

{

Thread.sleep(100);

}

catch(InterruptedException e){}

serving();

}

}