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學習

async-await

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#async-await

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1: async-await

async-await◦ UI◦

I / OHDDCPU◦

Examples

async-await

- Task◦ ◦
- await“” Task ◦ Task
- asyncawaitasync

```
public async Task DoStuffAsync()
{
    var result = await DownloadFromWebpageAsync(); //calls method and waits till execution
finished
    var task = WriteTextAsync(@"temp.txt", result); //starts saving the string to a file,
continues execution right await
    Debug.Write("this is executed parallel with WriteTextAsync!"); //executed parallel with
WriteTextAsync!
    await task; //wait for WriteTextAsync to finish execution
}

private async Task<string> DownloadFromWebpageAsync()
{
    using (var client = new WebClient())
    {
        return await client.DownloadStringTaskAsync(new Uri("http://stackoverflow.com"));
    }
}

private async Task WriteTextAsync(string filePath, string text)
{
    byte[] encodedText = Encoding.Unicode.GetBytes(text);

    using (FileStream sourceStream = new FileStream(filePath, FileMode.Append))
    {
        await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);
    }
}
```

- Task<string>◦ awaitstring ◦
- Task◦
- WebClient awaitline var result (...)
- TaskMethodNameAsync

CPUTask.Run(() => {}) ◦

```
public async Task DoStuffAsync()
{
    await DoCpuBoundWorkAsync();
```

```
}


private async Task DoCpuBoundWorkAsync()
{
    await Task.Run(() =>
    {
        for (long i = 0; i < Int32.MaxValue; i++)
        {
            i = i ^ 2;
        }
    });
}
```

Task

async-await Task◦

```
public async Task DoStuffAsync()
{
    await WaitAsync();
    await WaitDirectlyAsync();
}

private async Task WaitAsync()
{
    await Task.Delay(1000);
}

private Task WaitDirectlyAsync()
{
    return Task.Delay(1000);
}
```

- WaitAsyncTask.Delay◦
- WaitDirectlyAsyncTask◦

awaitTask◦

- await WaitAsync()◦
- await WaitDirectlyAsync◦ await WaitAsync()◦

exceptions await Task Exceptions◦

```
private async Task WaitAsync()
{
    try
    {
        await Task.Delay(1000);
    }
    catch (Exception ex)
    {
        //this might execute
        throw;
    }
```

```
}

private Task WaitDirectlyAsync()
{
    try
    {
        return Task.Delay(1000);
    }
    catch (Exception ex)
    {
        //this code will never execute!
        throw;
    }
}
```

void Task ◦ “”

```
public void DoStuff()
{
    FireAndForgetAsync();
}

private async void FireAndForgetAsync()
{
    await Task.Delay(1000);
    throw new Exception(); //will be swallowed
}
```

void await FireAndForgetAsync ◦ async void◦

async-await https://riptutorial.com/zh-TW/async-await/topic/5658/async-await

2:

Examples

- async void。

```
private async Task<bool> SomeFuncAsync() {
  ...
  await ...
}
public void button1_Click(object sender,  EventArgs e) {
  var result = SomeFuncAsync().Result;
  SomeOtherFunc();
}
```

asyncSynchronizationContext。 SomeFuncAsyncSynchronizationContext ;。

```
public async void button1_Click(object sender,  EventArgs e) {
  var result = await SomeFuncAsync();
  SomeOtherFunc();
}
```

- async voidasync voidSynchronizationContext。

```
private async void SomeFuncAsync() {
  throw new InvalidOperationException();
}
public void SomeOtherFunc() {
  try {
    SomeFuncAsync();
  }
  catch (Exception ex) {
    Console.WriteLine(ex);
    throw;
  }
}
```

SomeOtherFunccatch。

- async void

- async void。 MSTestTaskTask<T> async。

https://riptutorial.com/zh-TW/async-await/topic/9055/

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