

 무료 전자 책

배우기

async-await

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#async-
await

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1: async-await

async-await (,) . UI .

I/O (: HDD) CPU .

Examples

async-await .

- Task : . . .
- await : Task await . Task .
- async : await async .

```
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> .await string string .
- Task .
- (: WebClient) await (var result (...)).
- MethodNameAsync Task .

(: CPU) Task.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

Task async-await .

.

```

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

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

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

```

.

- WaitAsync Task.Delay .
- WaitDirectlyAsync Task .

await (Task).

- await WaitAsync() : , .
- await WaitDirectlyAsync . await WaitAsync() await WaitAsync() .

exceptions :Task await 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;
    }
}

```

Task void . " " :

```

public void DoStuff()
{
    FireAndForgetAsync();
}

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

```

void FireAndForgetAsync await . async void .

async-await : <https://riptutorial.com/ko/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();  
}
```

`async SynchronizationContext` . `SomeFuncAsync` `SynchronizationContext` . `()` .

.

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

- `async void SynchronizationContext` `async void` .

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

`SomeOtherFunc` `catch` `catch` .

- `async void` .
- `async void` . `MSTest` `Task` `Task<T>` `async` .

: <https://riptutorial.com/ko/async-await/topic/9055/>

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