



Day 8:

C# programming continues

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C# programming continues

Generic data types

- Generic data types make the class library easier to use in various situations
 - Without generic types, each available data type would need its own class implementation
- Generic data types are defined between the < > characters
 - The desired data type is entered between the angle brackets
- Example:
 - `List<string> names = new();`
 - `List<int> temperatures = new();`
 - `List<Car> myGarage = new();`
- More exotic generic data types
 - `Action<T>` and `Func<T, TResult>`

Exception handling

- In programming languages without exception handling, functions and methods must use return values to indicate success or failure
- .NET supports *exception handling*, which allows to write code assuming that everything usually works
 - This leads to cleaner code, since exceptions can be handled only in certain places inside the application
- In C#, the following statements are used:
 - try ... catch
 - try ... finally
- Exceptions have two main tasks
 - Handling error situations
 - Protecting resources
- Additionally exception filtering can be used

Processing dates and times in C#

- The main class: `System.DateTime`
 - To get the current date and time: `DateTime.Now`
 - Read any part of a date or a time: `Year`, `Month`, `Hour`, ...
 - `DateTime` supports calculations: `AddDays`, `AddMinutes`, etc.
- `TimeSpan`
 - Describes passed time, not no exact date or time
 - "after 30 seconds", "two days before"
- Conversions
 - `DateTime now = DateTime.Now;`
 - `string s = now.ToString();`
`DateTime anotherDate = DateTime.Parse(s);`

Formatting vales and dates

- In .NET, displaying and parsing strings, numbers and dates is based on the selected *culture*
 - On operating systems, the selected culture is based on the user's configuration
- The CultureInfo class
 - Included in the System.Globalization namespace
 - Contains for example the date format
- *NNN*.Parse method can take the desired culture as an optional parameter
- Calendar processing
 - The Calendar class
 - Also in System.Globalization