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# 1. .NET Framework architecture — structured explanation

## Top-level components

- **Common Language Runtime (CLR)**  
The execution engine. Handles JIT compilation, garbage collection (GC), security, threading, exception handling, and interop with unmanaged code.
- **Framework Class Library (FCL) / Base Class Library (BCL)**  
A large class library providing common functionality: collections, I/O, networking, XML, WinForms/WPF (Framework), ADO.NET, etc.
- **Languages & Compilers**  
Multiple languages (C#, VB.NET, F#) compile to the Common Intermediate Language (CIL or IL).
- **Metadata & Assemblies**  
Compiled code packaged as assemblies (.dll/.exe) containing IL + metadata (types, methods, versioning info).
- **Application Domains (AppDomain)**  
Lightweight isolation boundaries inside a process. Provide isolation of assemblies so you can load/unload sets of assemblies. (Note: AppDomains exist in .NET Framework; .NET Core/.NET 5+ use processes and other isolation mechanisms.)
- **Runtime Services**  
Type safety, security policy, code access security (CAS, in .NET Framework), interop, profiling/debugging APIs.

## How it fits together

- Source code (C#) → compiler → IL + metadata inside an assembly.
- At runtime the CLR loads the assembly, JIT-compiles IL to native code, provides memory management (GC), and runtime services.
- The FCL/BCL is consumed by applications; developers rely on it to avoid reinventing common code.

# 2. Key runtime concepts (CLR, CTS, CLS) — how to present to a team

## Common Language Runtime (CLR)

- The runtime engine that runs managed code: JIT, GC, exception handling, security, threading.
- Relevance: If we get an `OutOfMemoryException` or performance issue, the CLR is where GC and JIT behavior matter.

### Common Type System (CTS)

- Defines all data types and how they behave across languages (value types, reference types, type inheritance).
- Relevance: Ensures types from one .NET language (e.g., VB) interoperate with C#. When we design public APIs, pick types that map well across languages.

### Common Language Specification (CLS)

- A subset of CTS that defines rules for language interop (e.g., names should not differ only by case).
- Relevance: If our library advertises “CLS-compliant,” other .NET languages can use it safely. In practice: avoid unsigned public API types if cross-language compatibility is needed.

**Presentation tip:** Use concrete examples: “If you expose `public unsigned int` in C# it may not be usable from some languages — CLS matters.” Tie each concept to a common issue: performance (CLR/GC), cross-language API design (CTS/CLS).

## 3. Assemblies — explanation + scenario

### Definition

- An **assembly** is the deployment unit for .NET: a `.dll` or `.exe` containing IL, metadata, and optional resources and manifest. It provides versioning and identity (name, version, culture, public key token).

### Types

- **Private assemblies:** deployed with the application (local folder).
- **Shared (GAC) assemblies:** installed system-wide (Global Assembly Cache, .NET Framework only).
- **Satellite assemblies:** for localization resources.

### Why use assemblies

- Modularization: split code into logical units (UI, business logic, data access).
- Independent versioning and deployment.

- Security boundaries and load/unload (AppDomains).

### Example scenario

Large app divided into assemblies:

- MyApp.UI.dll — UI forms / web front-end.
- MyApp.Business.dll — business rules, services.
- MyApp.Data.dll — data access, repository implementations.
- MyApp.Common.dll — shared models, utils.

Deploy: MyApp.UI.exe references the other three DLLs. Teams can work separately; you can update the data layer assembly without changing UI if the contract (public API) remains stable.

## 4. Namespaces — explanation + example

### Definition

- A **namespace** groups related classes and prevents naming conflicts. Syntax: `namespace Company.Project.Module { ... }`.

### Why

- Avoid collisions (Company.Project.Logging.Logger vs ThirdParty.Logging.Logger).
- Organize code logically and make discoverability easier in IDEs (IntelliSense).

### Example

```
// File: Company.Project.Logging.Logger.cs
namespace Company.Project.Logging
{
    public class Logger
    {
        public void Log(string msg) => Console.WriteLine($"[LOG] {msg}");
    }
}

// File: ThirdParty.Logging.Logger.cs
namespace ThirdParty.Logging
{
    public class Logger
    {
        public void LogInfo(string msg) => Console.WriteLine($"[3P] {msg}");
    }
}
```

```
// Usage
using Company.Project.Logging;
using ThirdParty.Logging; // possible conflict if types named same — use
aliases.

class Program
{
    static void Main()
    {
        var myLogger = new Company.Project.Logging.Logger();
        myLogger.Log("Hello");

        var thirdLogger = new ThirdParty.Logging.Logger();
        thirdLogger.LogInfo("Hi");
    }
}
```

**Tip:** Use `using alias = ThirdParty.Logging.Logger;` if you need to resolve same type names.

## 5. Primitive types vs reference types — explanation

### Primitive types (commonly called value types)

- Built-in simple types like `int`, `double`, `bool`, `char`, `structs`. They store the actual value.
- Example: `int x = 5;` — `x` directly contains 5.

### Reference types

- Objects, arrays, `string`, delegates. Variables hold a reference (pointer) to an object on the heap.
- Example: `class Person { } Person p = new Person();` — `p` points to an object on the heap.

### Key differences

- Copying value type copies the value; copying reference type copies the reference (both variables point to the same object).
- Value types often allocated on the stack (or inline inside objects) and are generally faster/short-lived; reference types live on the heap and are GC-managed.
- `string` is a reference type even though it behaves like a primitive in many ways (immutable).

## 6. Value types vs reference types in C# — memory behavior + examples

### Value types

- Include primitives (`int`, `double`, `bool`) and `struct`.
- Stored inline: local variables live on the stack (or inside objects/arrays).
- Assignment copies the entire value.
- No GC overhead for small transient values.
- Example:

```
int a = 10;
int b = a; // b = 10; independent
b = 20;
// a still 10
```

### Reference types

- Instances created with `new` on the heap (objects, arrays, class instances).
- Assignment copies the reference. Multiple variables can reference same object.
- GC reclaims memory when no references remain.
- Example:

```
class Person { public string Name; }
var p1 = new Person { Name = "Alice" };
var p2 = p1;
p2.Name = "Bob";
// p1.Name is now "Bob" because p1 and p2 reference same object.
```

### Boxing/Unboxing

- Converting a value type to `object` boxes it to the heap; unboxing extracts value.

## 7. Implicit and explicit conversions — program (C#)

### Explanation

- *Implicit conversion*: safe, no data loss (e.g., `int` → `double`). Compiler inserts conversion automatically.
- *Explicit conversion (cast)*: possible data loss or narrowing (e.g., `double` → `int`), so you must cast.

## Program

```
using System;

class ConversionsDemo
{
    static void Main()
    {
        int i = 42;
        // Implicit conversion: int -> double (no data loss)
        double d = i;
        Console.WriteLine($"Implicit: int {i} -> double {d}");

        // Explicit conversion: double -> int (possible fractional loss)
        double pi = 3.14159;
        int truncated = (int)pi; // explicit cast, fractional part lost
        Console.WriteLine($"Explicit: double {pi} -> int {truncated}");

        // Show potential overflow case
        double large = 1e20;
        try
        {
            int castLarge = (int)large; // compiles; result is
implementation-defined (overflow)
            Console.WriteLine($"Casting large double {large} -> int
{castLarge}");
        }
        catch (OverflowException ex)
        {
            Console.WriteLine($"Overflow on cast: {ex.Message}");
        }
    }
}
```

## Example output

```
Implicit: int 42 -> double 42
Explicit: double 3.14159 -> int 3
Casting large double 1E+20 -> int 2147483647
```

(Last line may vary but demonstrates data loss/overflow.)

# 8. Determine whether a number is positive, negative, or zero — C# with if-else

## Logic

- If number > 0 → positive

- Else if number < 0 → negative
- Else → zero

### Program

```
using System;

class PosNegZero
{
    static void Main()
    {
        Console.Write("Enter an integer: ");
        if (!int.TryParse(Console.ReadLine(), out int num))
        {
            Console.WriteLine("Invalid input.");
            return;
        }

        if (num > 0)
            Console.WriteLine("Number is positive.");
        else if (num < 0)
            Console.WriteLine("Number is negative.");
        else
            Console.WriteLine("Number is zero.");
    }
}
```

### Example

Input: -5 → Output: Number is negative.

## 9. Switch-case construct — number (1-5) to weekday — C#

### Program

```
using System;

class WeekdaySwitch
{
    static void Main()
    {
        Console.Write("Enter a number (1-5): ");
        if (!int.TryParse(Console.ReadLine(), out int n))
        {
            Console.WriteLine("Invalid input.");
            return;
        }

        switch (n)
```



```

    {
        case 1:
            Console.WriteLine("Monday");
            break;
        case 2:
            Console.WriteLine("Tuesday");
            break;
        case 3:
            Console.WriteLine("Wednesday");
            break;
        case 4:
            Console.WriteLine("Thursday");
            break;
        case 5:
            Console.WriteLine("Friday");
            break;
        default:
            Console.WriteLine("Number out of range (1-5).");
            break;
    }
}

```

### Example

Input 3 → Output Wednesday.

## 10. Nested if-else and switch-case together — program

**Requirement:** Check number, print even/odd and which range it falls into (0–10, 11–20).

### Program

```

using System;

class NestedDecision
{
    static void Main()
    {
        Console.Write("Enter an integer: ");
        if (!int.TryParse(Console.ReadLine(), out int num))
        {
            Console.WriteLine("Invalid input.");
            return;
        }

        // Even or odd
        string parity = (num % 2 == 0) ? "even" : "odd";
        Console.WriteLine($"{num} is {parity}.");
    }
}

```

```

// Range check using nested if-else
if (num >= 0 && num <= 10)
    Console.WriteLine("Range: 0-10");
else if (num >= 11 && num <= 20)
    Console.WriteLine("Range: 11-20");
else
    Console.WriteLine("Range: outside 0-20");

// Illustrate mixing switch for parity and range category
int rangeCategory = (num >= 0 && num <= 10) ? 1 : (num >= 11 && num
<= 20) ? 2 : 3;
switch (rangeCategory)
{
    case 1:
        Console.WriteLine("Switch: in 0-10");
        break;
    case 2:
        Console.WriteLine("Switch: in 11-20");
        break;
    default:
        Console.WriteLine("Switch: outside 0-20");
        break;
}
}
}

```

### Example

Input 7 →

```

7 is odd.
Range: 0-10
Switch: in 0-10

```

## 11. Fibonacci series using a for loop — code + explanation

### Approach

- Use iterative approach: start with 0, 1, then each next = sum of previous two.
- Use a for loop for n terms.

### Program

```

using System;

class FibonacciFor
{
    static void Main()
    {

```

```

    Console.WriteLine("How many terms? ");
    if (!int.TryParse(Console.ReadLine(), out int n) || n < 1)
    {
        Console.WriteLine("Enter a positive integer.");
        return;
    }

    long a = 0, b = 1;
    if (n >= 1) Console.Write(a);
    if (n >= 2) Console.Write(" " + b);

    for (int i = 3; i <= n; i++)
    {
        long c = a + b;
        Console.Write(" " + c);
        a = b;
        b = c;
    }

    Console.WriteLine();
}

```

**Explanation inside code:** `a` and `b` track the last two numbers; loop computes next `c`, prints it, then shifts `a=b`, `b=c`.

### Example

Input 6 → Output: 0 1 1 2 3 5

## 12. while vs do-while loops — differences + examples

### Key differences

- `while(condition) { }` — condition checked before entering loop. If false initially, body never runs.
- `do { } while(condition);` — body runs at least once; condition checked after body.

### When to use

- `while`: when you may want zero iterations (e.g., read input only if available).
- `do-while`: when you need the body to execute at least once (e.g., show a menu and ask user to continue).

### Examples

*while:*

```
int i = 0;
while (i < 3)
{
    Console.WriteLine(i);
    i++;
}
```

*do-while:*

```
int choice;
do
{
    Console.WriteLine("Menu: 1=Do, 0=Exit");
    choice = int.Parse(Console.ReadLine());
} while (choice != 0);
```

## 13. Pyramid pattern using nested loops — program

**Goal:** Pyramid of stars; e.g., for n=4:

```
  *
 ***
*****
*****
```

### Program

```
using System;

class PyramidPattern
{
    static void Main()
    {
        Console.Write("Enter number of rows: ");
        if (!int.TryParse(Console.ReadLine(), out int n) || n <= 0)
        {
            Console.WriteLine("Enter a positive integer.");
            return;
        }

        for (int i = 1; i <= n; i++)
        {
            // print spaces
            for (int s = 0; s < n - i; s++)
                Console.Write(' ');

            // print stars: 2*i - 1
```

```

        for (int star = 0; star < 2 * i - 1; star++)
            Console.Write('*');

        Console.WriteLine();
    }
}

```

**How loops work:** Outer loop iterates rows; first inner loop prints leading spaces to center pyramid; second inner loop prints the required stars.

## 14. OOP concepts — definitions + real-world C# examples

### Encapsulation

- Hiding internal state and exposing behavior via methods/properties.
- Example: `class BankAccount { private decimal balance; public void Deposit(decimal amt) { ... } }`

### Inheritance

- Deriving a new type from an existing one to reuse and extend behavior.
- Example: `class Animal { } class Dog : Animal { }`

### Polymorphism

- Ability to treat objects of different derived types through a common base type (method overriding or interfaces).
- Example: `virtual void Speak()` in `Animal` overridden by `Dog/Cat`. Or interfaces like `IShape.Draw()` implemented differently.

### Abstraction

- Expose only essential features and hide complexity. Use abstract classes/interfaces.
- Example: `interface IRepository<T> { void Add(T t); T Get(int id); }` — hides storage details.

## 15. Constructors and destructors — program + explanation

**Constructor:** special method invoked when object is created — initialize state.

**Destructor (finalizer):** `~ClassName()` called by GC at some indeterminate time before object memory reclaimed. Use only for releasing unmanaged resources; prefer `IDisposable` and `Dispose()`.

### Program demonstration

```
using System;

class Demo
{
    public Demo()
    {
        Console.WriteLine("Constructor: object created.");
    }

    ~Demo()
    {
        // Finalizer — called by GC in non-deterministic time
        Console.WriteLine("Finalizer: object is being collected (non-
deterministic).");
    }
}

class Program
{
    static void Main()
    {
        CreateAndRelease();
        Console.WriteLine("Main finished. Forcing GC (for demo only).");
        GC.Collect();
        GC.WaitForPendingFinalizers();
        Console.WriteLine("After GC.WaitForPendingFinalizers().");
    }

    static void CreateAndRelease()
    {
        Demo d = new Demo();
        // d goes out of scope at end of method
    }
}
```

**Lifecycle:** `new Demo()` → constructor runs immediately. When object becomes unreachable, GC may run and call finalizer at some later time. For deterministic cleanup of unmanaged resources, implement `IDisposable` and call `Dispose()` (or use `using`).

# 16. Access modifiers — explanation + example class

## Modifiers

- `public`: accessible everywhere.
- `private`: accessible only within the containing class.
- `protected`: accessible in the containing class and derived classes.
- `internal`: accessible within the same assembly.
- `protected internal` / `private protected` combine semantics.

## Example

```
public class Sample
{
    public int PublicValue = 1;
    private int PrivateValue = 2;
    protected int ProtectedValue = 3;
    internal int InternalValue = 4;

    public void Demo()
    {
        Console.WriteLine($"Inside class: {PublicValue}, {PrivateValue},
{ProtectedValue}, {InternalValue}");
    }
}

public class Derived : Sample
{
    public void Show()
    {
        Console.WriteLine($"In derived: {PublicValue}, {ProtectedValue},
{InternalValue}");
        // PrivateValue is not accessible here.
    }
}

class Program
{
    static void Main()
    {
        {
            var s = new Sample();
            Console.WriteLine(s.PublicValue);    // OK
            // Console.WriteLine(s.PrivateValue); // Not accessible
            Console.WriteLine(s.InternalValue);  // OK within same assembly
        }
    }
}
```

# 17. Inheritance example — Vehicle, Car, Bike

## Program

```
using System;

class Vehicle
{
    public string Make { get; set; }
    public void Start() => Console.WriteLine("Vehicle started.");
}

class Car : Vehicle
{
    public void OpenTrunk() => Console.WriteLine("Car trunk opened.");
}

class Bike : Vehicle
{
    public void KickStart() => Console.WriteLine("Bike kick-started.");
}

class Program
{
    static void Main()
    {
        Car car = new Car { Make = "Toyota" };
        car.Start();
        car.OpenTrunk();

        Bike bike = new Bike { Make = "Honda" };
        bike.Start();
        bike.KickStart();
    }
}
```

**Explanation:** Car and Bike inherit Start() from Vehicle — code reuse. They add specific methods.

# 18. try-catch-finally — arithmetic exception example

## Explanation

- try block: code that might throw exceptions.
- catch block(s): handle specific exception types.



- **finally block:** always executed, used for cleanup (runs even if exception thrown, except in rare cases like process termination).

## Program

```
using System;

class TryCatchFinallyDemo
{
    static void Main()
    {
        try
        {
            Console.WriteLine("Enter divisor (int): ");
            int divisor = int.Parse(Console.ReadLine());
            int result = 10 / divisor; // may throw DivideByZeroException
            Console.WriteLine($"Result: {result}");
        }
        catch (DivideByZeroException ex)
        {
            Console.WriteLine("Cannot divide by zero: " + ex.Message);
        }
        catch (FormatException ex)
        {
            Console.WriteLine("Invalid number format: " + ex.Message);
        }
        catch (Exception ex)
        {
            Console.WriteLine("General error: " + ex.Message);
        }
        finally
        {
            Console.WriteLine("Finally block executed (cleanup if needed).");
        }
    }
}
```

## Example

Input 0 → Output:

```
Cannot divide by zero: Attempted to divide by zero.
Finally block executed (cleanup if needed).
```

# 19. Custom exception — program + why useful

## Why custom exceptions

- Provide domain-specific error types that make error handling clearer and allow callers to catch specific problems.

## Program

```
using System;

public class InvalidAgeException : Exception
{
    public InvalidAgeException() { }
    public InvalidAgeException(string message) : base(message) { }
    public InvalidAgeException(string message, Exception inner) :
base(message, inner) { }
}

class Registration
{
    public static void RegisterUser(string name, int age)
    {
        if (age < 0 || age > 120)
            throw new InvalidAgeException($"Age {age} is not valid for
registration.");
        Console.WriteLine($"User {name} registered, age {age}.");
    }
}

class Program
{
    static void Main()
    {
        try
        {
            Registration.RegisterUser("Alice", -1);
        }
        catch (InvalidAgeException ex)
        {
            Console.WriteLine("Custom exception caught: " + ex.Message);
        }
    }
}
```

## Output

Custom exception caught: Age -1 is not valid for registration.

# 20. Advantages of exception handling in C# — explanation

## Key benefits

- **Improves robustness:** code can gracefully handle unexpected conditions instead of crashing.
- **Separation of concerns:** error-handling logic separated from normal code flow.
- **Precise handling:** catch specific exceptions to deal with different failure modes.
- **Resource safety:** `finally/using` ensures resources (files, DB connections) are cleaned up.
- **Debugging support:** exceptions carry stack traces and inner exceptions to aid diagnostics.

### Best practices

- Don't use exceptions for normal control flow.
- Catch specific exceptions, not `catch (Exception)` unless rethrowing or logging.
- Always clean up resources (`using` for `IDisposable`, `finally` for general cleanup).
- Wrap high-level entry points with top-level handlers to log/translate failures gracefully.

# Lab Assignment 5

## Q1 Handling Division by Zero

Read two numbers and perform division. Use try-catch-finally. Catch DivideByZeroException and display "Division by zero is not allowed." In the finally block display "Execution completed." Ensure finally executes regardless of exceptions

Ans:-

// Assignment 5 - Exception Handling  
// Developed by Yash Kumar Varshney

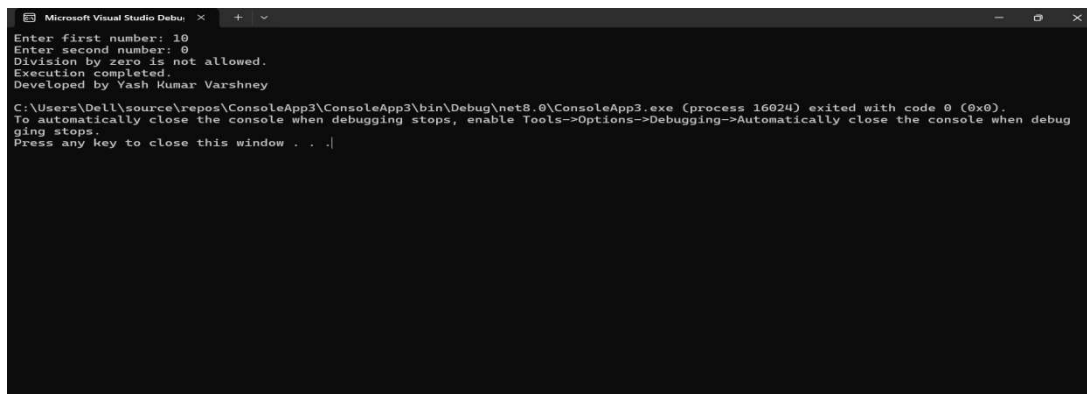
using System;

```
class DivisionExample
{
    static void Main()
    {
        try
        {
            Console.Write("Enter first number: ");
            int num1 = Convert.ToInt32(Console.ReadLine());

            Console.Write("Enter second number: ");
            int num2 = Convert.ToInt32(Console.ReadLine());

            int result = num1 / num2;
            Console.WriteLine("Result: " + result);
        }
        catch (DivideByZeroException)
        {
            Console.WriteLine("Division by zero is not allowed.");
        }
        finally
        {
            Console.WriteLine("Execution completed.");
        }

        Console.WriteLine("Developed by Yash Kumar Varshney");
    }
}
```



```
Microsoft Visual Studio Debu  x + -
Enter first number: 10
Enter second number: 0
Division by zero is not allowed.
Execution completed.
Developed by Yash Kumar Varshney

C:\Users\Dell\source\repos\ConsoleApp3\ConsoleApp3\bin\Debug\net8.0\ConsoleApp3.exe (process 16024) exited with code 0 (0x0).
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debug
ging stops.
Press any key to close this window . . .|
```

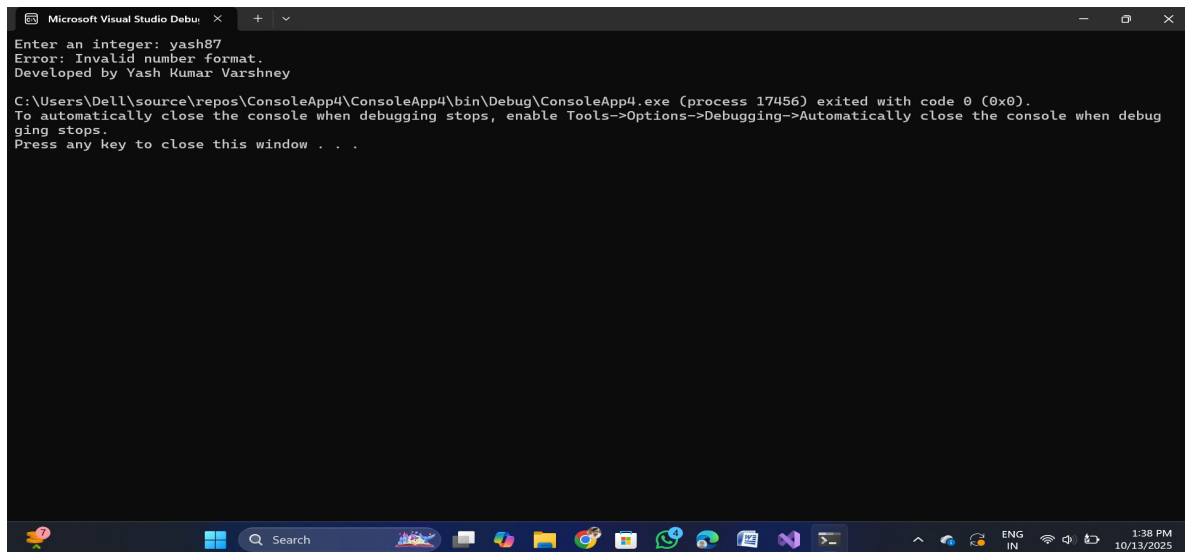
## Q2. Multiple Catch Blocks

Read console input and convert to int. Handle FormatException, OverflowException, and a generic Exception, with distinct messages.

Ans:- using System;

```
class MultipleCatchDemo
{
    static void Main(String[] args)
    {
        try
        {
            Console.Write("Enter an integer: ");
            int num = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Number entered: " + num);
        }
        catch (FormatException)
        {
            Console.WriteLine("Error: Invalid number format.");
        }
        catch (OverflowException)
        {
            Console.WriteLine("Error: Number is too large or too small.");
        }
        catch (Exception ex)
        {
            Console.WriteLine("General Error: " + ex.Message);
        }

        Console.WriteLine("Developed by Yash Kumar Varshney");
    }
}
```



```
Microsoft Visual Studio Debu: X + -
Enter an integer: yash87
Error: Invalid number format.
Developed by Yash Kumar Varshney

C:\Users\Dell\source\repos\ConsoleApp4\ConsoleApp4\bin\Debug\ConsoleApp4.exe (process 17456) exited with code 0 (0x0).
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debug
ging stops.
Press any key to close this window . . .
```

### Q3. Custom Exception —

NegativeSalaryException Define NegativeSalaryException : Exception. If entered salary < 0, throw it and handle with a clear error message.

Ans:-

```
using System;

class NegativeSalaryException : Exception
{
    public NegativeSalaryException(string message) : base(message) { }
}

class Employee
{
    public double Salary { get; set; }

    public void SetSalary(double salary)
    {
        if (salary < 0)
            throw new NegativeSalaryException("Salary cannot be negative!");
        else
            Salary = salary;
    }
}

class Program
{
    static void Main()
    {
        Employee emp = new Employee();

        try
        {
            Console.Write("Enter salary: ");
            double s = Convert.ToDouble(Console.ReadLine());
            emp.SetSalary(s);
            Console.WriteLine("Salary set successfully: " + emp.Salary);
        }
        catch (NegativeSalaryException ex)
        {
            Console.WriteLine("Error: " + ex.Message);
        }
        Console.WriteLine("Developed by Yash Kumar Varshney");
    }
}
```

```
Enter salary: -8000
Error: Salary cannot be negative!
Developed by Yash Kumar Varshney
```

```
C:\Users\Dell\source\repos\ConsoleApp4\ConsoleApp4\bin\Debug\ConsoleApp4.exe (process 18228) exited with code 0 (0x0).
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

```
Enter salary: 60000
Salary set successfully: 60000
Developed by Yash Kumar Varshney
```

```
C:\Users\Dell\source\repos\ConsoleApp4\ConsoleApp4\bin\Debug\ConsoleApp4.exe (process 14856) exited with code 0 (0x0).
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

#### Q4. Banking Scenario —

InsufficientBalanceException Simulate withdrawal: if withdrawal > balance, throw custom InsufficientBalanceException; otherwise print remaining balance.

Ans:-

```
using System;

class InsufficientBalanceException : Exception
{
    public InsufficientBalanceException(string message) : base(message) { }
}

class BankAccount
{
    public double Balance { get; private set; }

    public BankAccount(double initialBalance)
    {
        Balance = initialBalance;
    }

    public void Withdraw(double amount)
    {
        if (amount > Balance)
            throw new InsufficientBalanceException("Insufficient balance for withdrawal!");
        else
        {
            Balance -= amount;
            Console.WriteLine("Withdrawal successful. Remaining Balance: " + Balance);
        }
    }
}

class Program
{
    static void Main()
    {
        BankAccount account = new BankAccount(5000);

        try
        {
            Console.Write("Enter withdrawal amount: ");
            double amount = Convert.ToDouble(Console.ReadLine());
            account.Withdraw(amount);
        }
        catch (InsufficientBalanceException ex)
        {
            Console.WriteLine("Error: " + ex.Message);
        }
        Console.WriteLine("Developed by Yash Kumar Varshney");
    }
}
```



```
Microsoft Visual Studio Debu  X + v
Enter withdrawal amount: 5000
Withdrawal successful. Remaining Balance: 0
Developed by Yash Kumar Varshney

C:\Users\Dell\source\repos\ConsoleApp4\ConsoleApp4\bin\Debug\ConsoleApp4.exe (process 5572) exited with code 0 (0x0).
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debug
ging stops.
Press any key to close this window . . .
```

```
Microsoft Visual Studio Debu  X + v
Enter withdrawal amount: 6000
Error: Insufficient balance for withdrawal!
Developed by Yash Kumar Varshney

C:\Users\Dell\source\repos\ConsoleApp4\ConsoleApp4\bin\Debug\ConsoleApp4.exe (process 300) exited with code 0 (0x0).
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debug
ging stops.
Press any key to close this window . . .
```