# Boosting Test Speed with Parallel Testing and Targeted Automation


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newspark
a BlueGroup IT company

TEST AUTOMATION DAYS 2025
INITIATED AND ORGANIZED BY CKC SEMINARS

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# Me

André Koene

sogeti Part of Capgemini

newspark a BlueGroup IT company

FYNCH EVERY TRIP COUNTS

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Rabobank

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# Me

André Koene


# 🧭 Navigation

- 🔍 **What**
- ❓ **Why**
- 📜 **How**

- 🎯 **T** argeted
- 🛡️ **R** eliable
- 💡 **I** nformative
- 🔧 **M** aintainable
- ⚡ **S** peedy

# 🔍 What

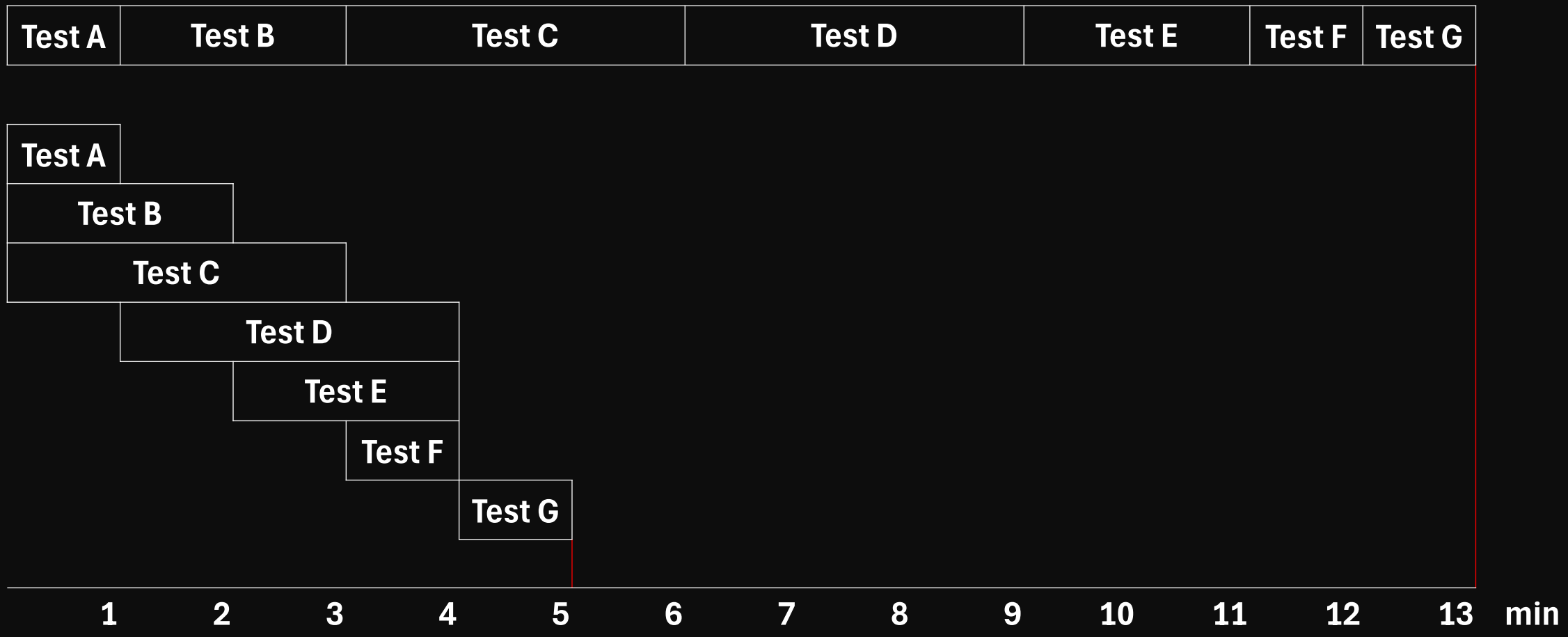
“Parallel testing is a method used to run multiple **automated tests** at the same time, rather than one after another (sequentially).”


**Order process** Endpoints related to the order process

| | | |
|---|---|---|
| GET | /cart/{customerId} | Get the shopping cart contents |
| POST | /cart/{customerId}/addItem | Add an item to the shopping cart |
| POST | /cart/{customerId}/placeOrder | Place an order |

**Customer data** Endpoints related to the customer data

| | | |
|---|---|---|
| GET | /orders/{customerId}/history | Get customer order history |


Test A
Test B
Test C
Test D
Test E
Test F
Test G
Test A
Test B
Test C
Test D
Test E
Test F
Test G
1
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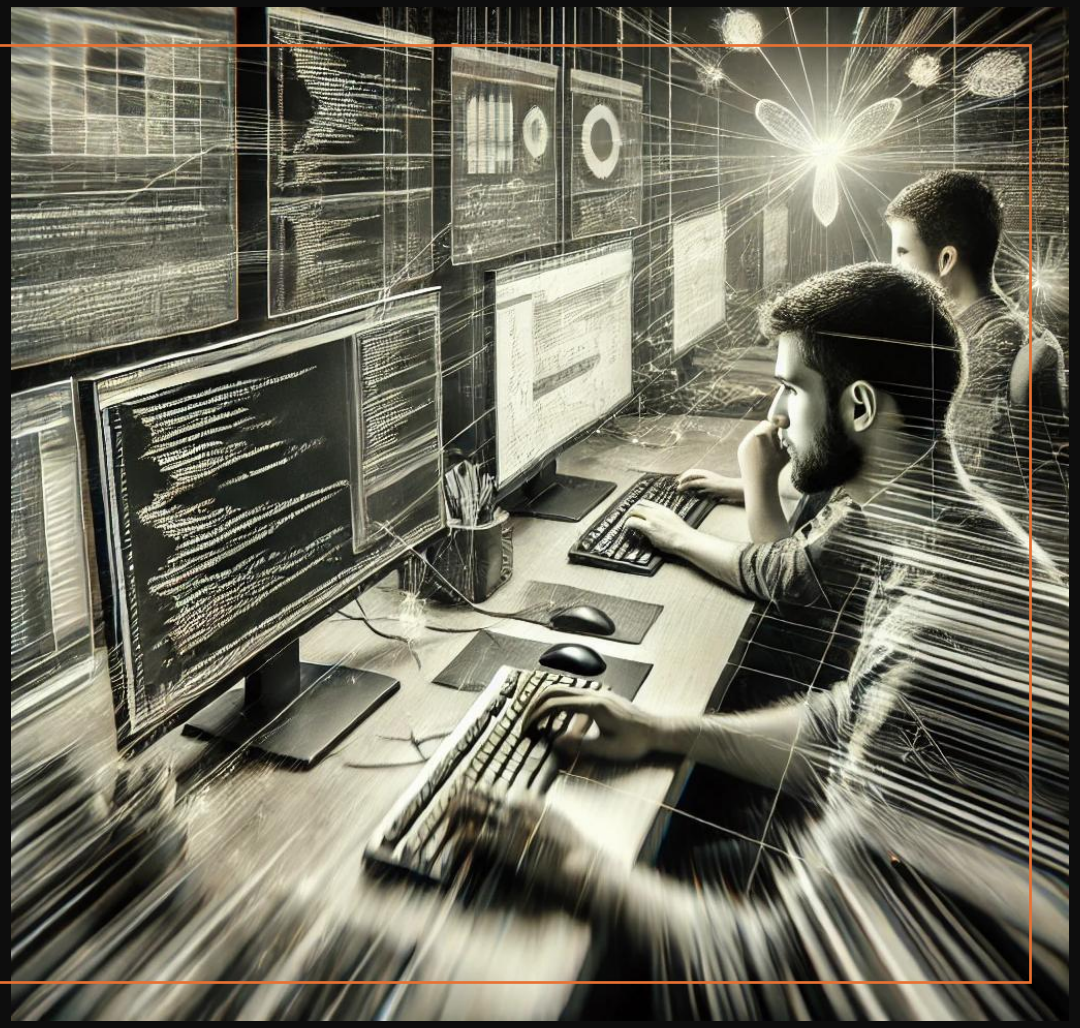
# ❓ Why

**Context switches are killing**

“Fast feedback from tests enables quicker bug fixes and immediate retesting while the details are still fresh in mind.”



# How

github.com/AndreD3v/ReqNRollerCoaster

docs.reqnroll.net/latest/execution/parallel-execution.html

cucumber.io/docs/guides/parallel-execution

docs.robotframework.org/docs/parallel

# 🎓 TRIMS

“TRIMS is a mnemonic for creating valuable automation that truly supports your testing.”

**Richard Bradshaw**

# 🎓 TRIMS

“Every principle plays a crucial role in accelerating test feedback”

🎯 **T** argeted

🛡️ **R** eliable

💡 **I** nformative

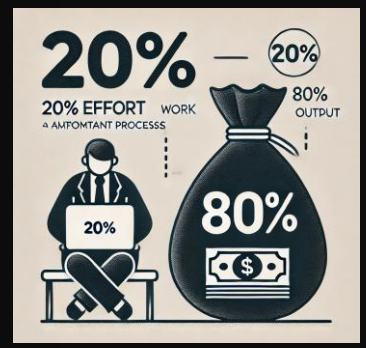
🔧 **M** aintainable

⚡ **S** peedy

# 🎯 Targeted


**Risk**
**=**
**Probability**
**x**
**Severity**

```
Scenario: combine Scenarios A and B
    Given I have a default customer
    When I do something
    Then I should see 'XXX'
    When I do something else
    Then I should see 'YYY'
```




# Reliable

TRIMS

```
4
5   Scenario: Test A
6       Given I have a default customer
7       When I do something
8       Then I should see a customer with property 'XXX'
9
10  Scenario: Test B
11      Given I have a default customer
12      When I do something else
13      Then I should see a customer with property 'YYY'
```

log_20250124152515692025012 4.log

```
1  [15:25:03.751+01:00 INF] Test A | customerId= '7777'
2  [15:26:05.754+01:00 INF] Test A | customerId= '7777' has done something
3  [15:27:07.765+01:00 INF] Test B | customerId= '8888'
4  [15:28:10.766+01:00 INF] Test B | customerId= '8888' has done something else
5  [15:29:12.757+01:00 INF] Test A | customerId= '7777' has 'XXX', while expected 'XXX'
6  [15:30:19.766+01:00 INF] Test B | customerId= '7777' has 'XXX', while expected 'YYY'
7
```

# Context leakage

```
private int _executedTestScenarios = 0;

[Before Scenario]                    [BeforeTestRun]
public void BeforeScenario()
{
        // Only execute this block on the very first test scenario
        if (_executed stScenarios == 0)
        {
            Task.Run(() => CleanupOldData()).Wait();
        }
        else
        {
            Log.Information($"Skipped testdata clean-up for this individual scenario");
        }
        _executedTe cenarios++
}
```

Deadlocks

# Informative

Test run finished: 9 Tests (8 Passed, 1 Failed, 0 Skipped) run in 12,7 sec

TRIMS

Test

- ReqNRollerCoasterProject (9)
  - ReqNRollerCoasterProject.Fe...
    - AddNumbersFeature (3)
      - AddANegativeNumbers
      - AddTwoNumbers
      - AddTwoOtherNumbers
    - DivideNumbersFeature (3)
    - MultiplyNumbersFeature (3)

Run | Debug | Ask Copilot

**Test Detail Summary**

AddTwoNumbers

Source: AddNumbers.feature line 9

Duration: 4,1 sec

Message:

```
Expected _result to be 120, but found 130 (difference of 10).
```

Stack Trace:

Standard Output:

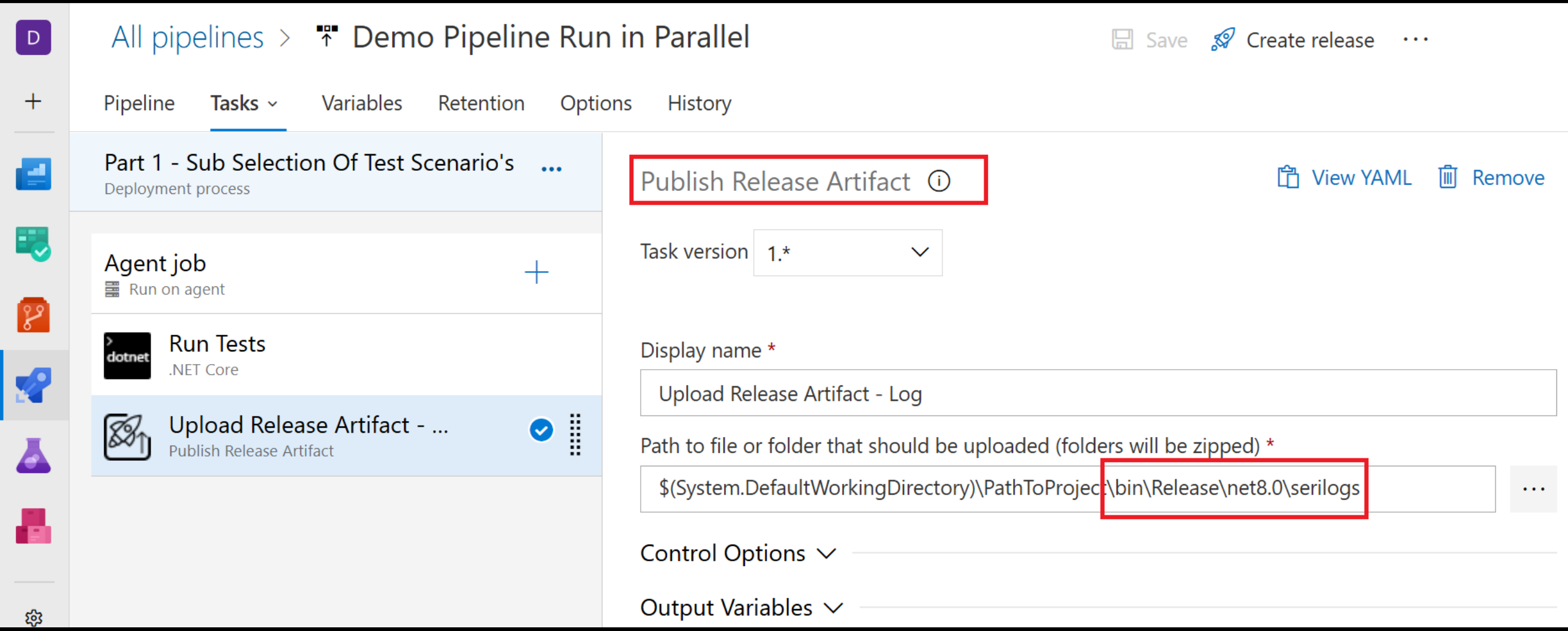
```
[19:54:49.318+01:00 INF] BeforeScenario - Starting scenario: Add two numbers
Given the first number is 50
[19:54:49.318+01:00 INF] _firstNumber = 50
-> done: CalculatorStepDefinitions.GivenTheFirstNumberIs(50) (0,0s)
And the second number is 70
[19:54:50.332+01:00 INF] _secondNumber = 70
-> done: CalculatorStepDefinitions.GivenTheSecondNumberIs(70) (0,0s)
When the two numbers are added
[19:54:51.344+01:00 INF] _result = 130
-> done: CalculatorStepDefinitions.WhenTheTwoNumbersAreAdded() (0,0s)
Then the result should be 120
-> error: Expected _result to be 120, but found 130 (difference of 10). (0,1s)
```

# Clear and organized logging

log_20250128195445192025012 8.log

```
13 [19:54:47.283+01:00 INF] Add a negative numbers | _result = 46
14 [19:54:49.318+01:00 INF] Divide two numbers | BeforeScenario - Starting scenario: Divide two numbers
15 [19:54:49.318+01:00 INF] Add two numbers | BeforeScenario - Starting scenario: Add two numbers
16 [19:54:49.318+01:00 INF] Multiply two numbers | BeforeScenario - Starting scenario: Multiply two numbers
17 [19:54:49.318+01:00 INF] Divide two numbers | firstNumber = 100
18 [19:54:49.318+01:00 INF] Add two numbers | firstNumber = 50
19 [19:54:49.318+01:00 INF] Multiply two numbers | firstNumber = 60
20 [19:54:50.332+01:00 INF] Divide two numbers | secondNumber = 20
21 [19:54:50.332+01:00 INF] Add two numbers | secondNumber = 70
22 [19:54:50.332+01:00 INF] Multiply two numbers | _secondNumber = 70
23 [19:54:51.344+01:00 INF] Multiply two numbers | _result = 4200
24 [19:54:51.344+01:00 INF] Divide two numbers | result = 5
25 [19:54:51.344+01:00 INF] Add two numbers | result = 130
26 [19:54:53.365+01:00 INF] Divide two other numbers | BeforeScenario - Starting scenario: Divide two other
27 [19:54:53.365+01:00 INF] Divide two other numbers | _firstNumber = 60
```

# 💡 Clear and organized logging




# logging in the pipeline

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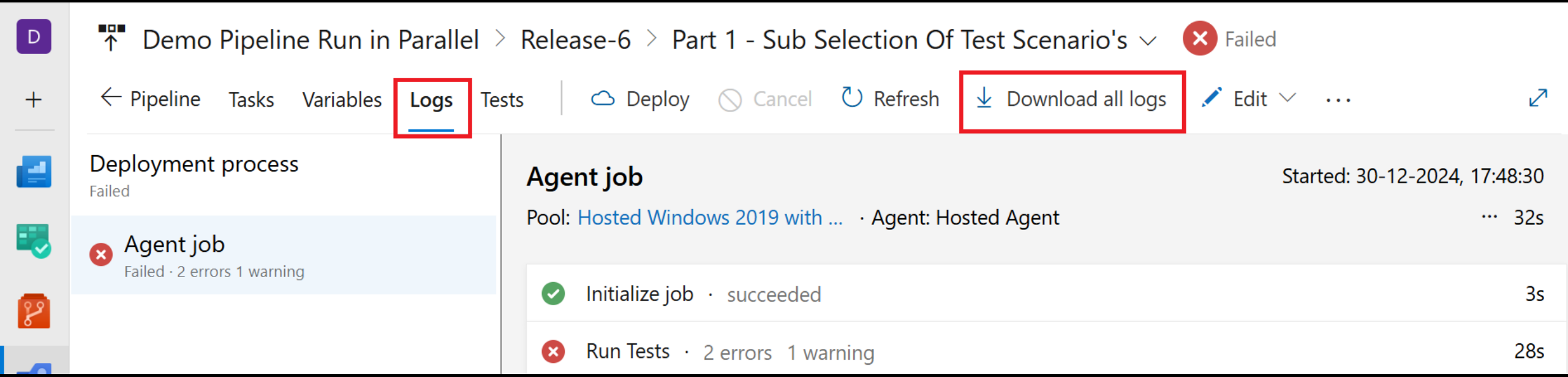
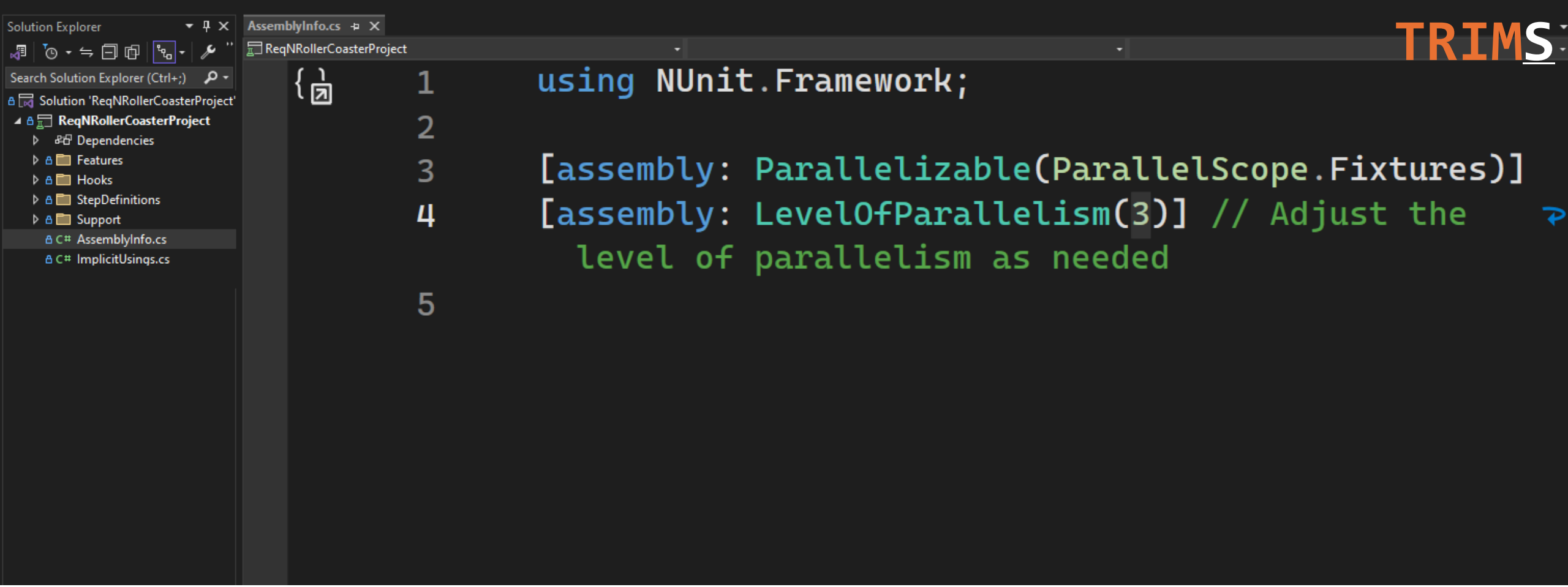



# logging in the pipeline

# 🔧 Maintainable



# Speedy




TRIMS

# Greenfield setup

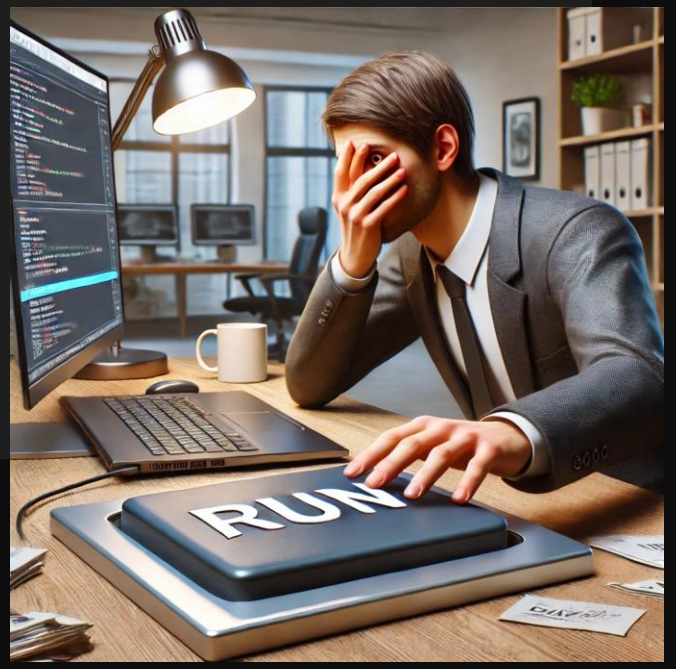

Given/When

# TRIMS

AssemblyInfo.cs

ReqNRollerCoasterProject

```
1  using NUnit.Framework;
2
3  [assembly: Parallelizable(ParallelScope.Fixtures)]
4  [assembly: LevelOfParallelism(3)] // Adjust the
     level of parallelism as needed
5
```




#@##
@#??
STUCK
02.39.23
LOGS

```
/// <summary>
/// Cleanup statics from 'Context' class before each testscenario
/// </summary>
[BeforeScenario]
0 references
public void BeforeScenarioCleanupStatics()
{
    // Add 'scenario' scope to seri log
    LogContext.PushProperty("Scenario", _scenarioContext.ScenarioInfo.Title);

    string[] assignedTags = _scenarioContext.ScenarioInfo.CombinedTags;
    if (assignedTags.Contains("RunInParallel"))
    {
        Log.Information("BeforeScenario - This test scenario should be able to run in parallel");
    }
    else
    {
        Log.Information("All shared 'Context' objects will be cleared");
        //todo: these contexts must be phased out, to run in parallel: It should not be necessary to reset
          contexts between multiple scenarios:
        Context.DummyA = null;
        Context.DummyB = null;
        Context.DummyC = null;
        Context.DummyD = null;
        Context.DummyE = null;
    }
}
```

# TRIMS

log_20250124152515692025012 4.log

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7
```

AssemblyInfo.cs

ReqNRollerCoasterProject

```
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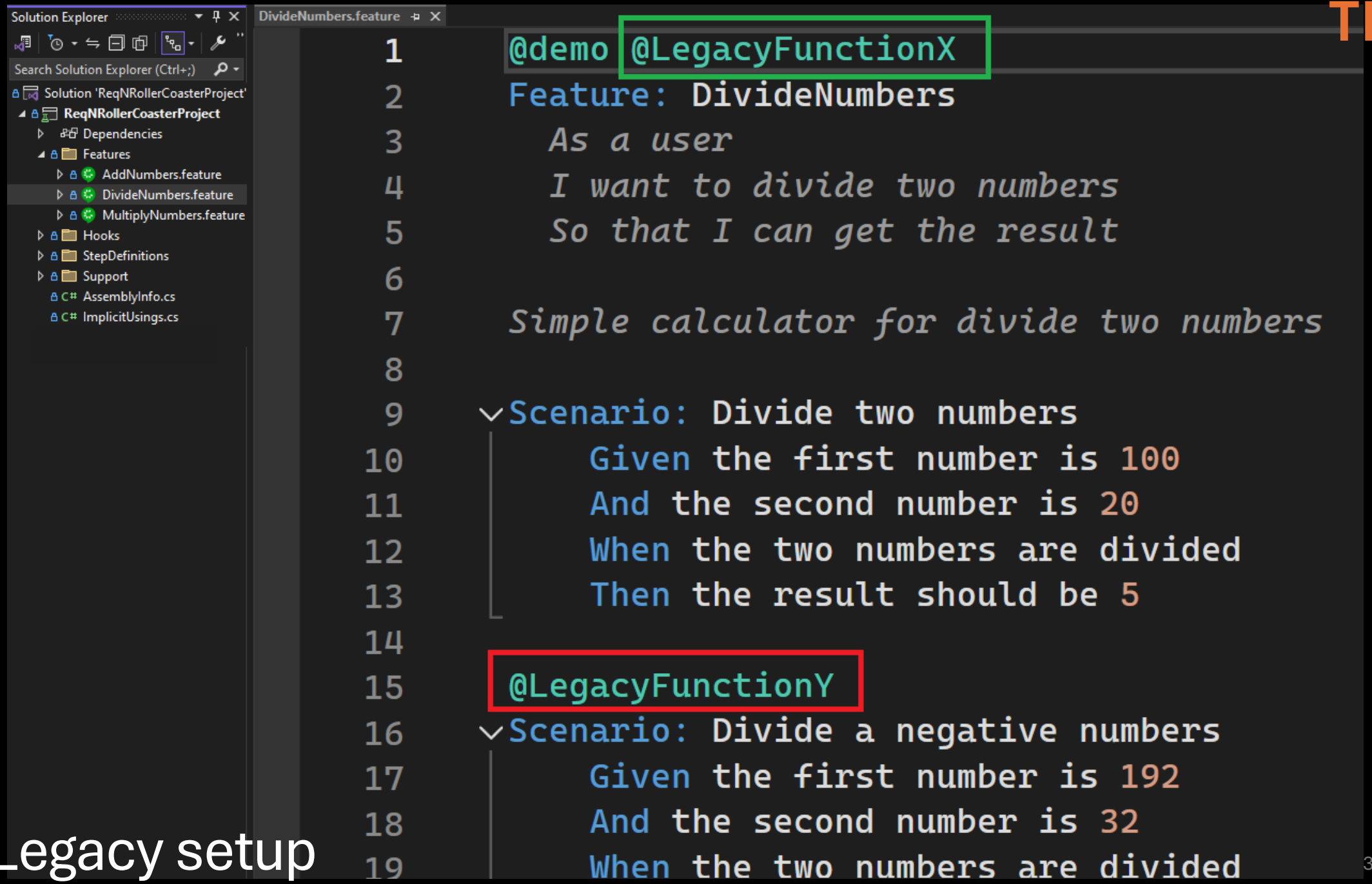
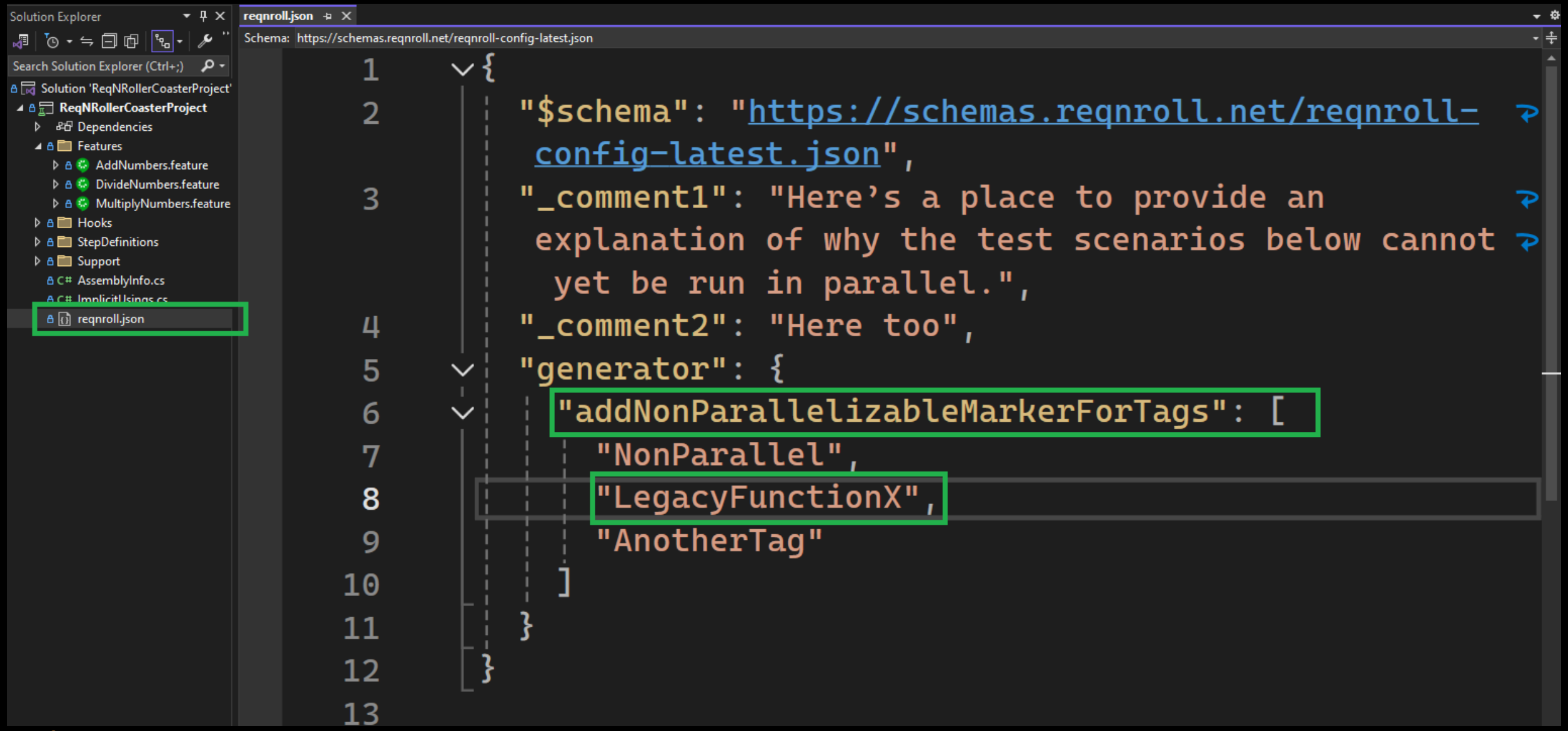
```

# Legacy setup

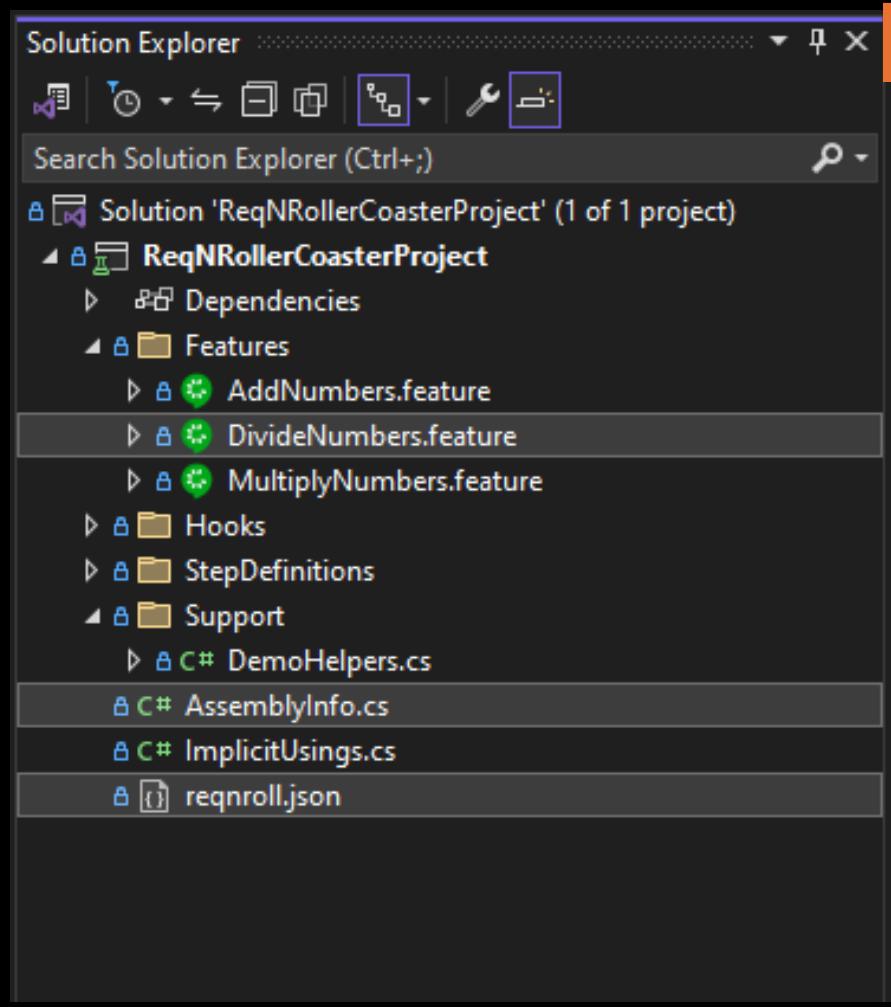



TRIMS

Legacy setup




# Legacy setup




AssemblyInfo.cs | DivideNumbers.feature | reqnroll.json

```
1   @demo @LegacyFunctionX
2   Feature: DivideNumbers
3     As a user
4     I want to divide two numbers
5     So that I can get the result
6
7   Simple calculator for divide two numbers
8
9   Scenario: Divide two numbers
10      Given the first number is 100
11      And the second number is 20
12      When the two numbers are divided
13      Then the result should be 5
14
```

# Legacy setup

TRIMS

```
/// <summary>
/// Cleanup statics from 'Context' class before each testscenario
/// </summary>
[BeforeScenario]
0 references
public void BeforeScenarioCleanupStatics()
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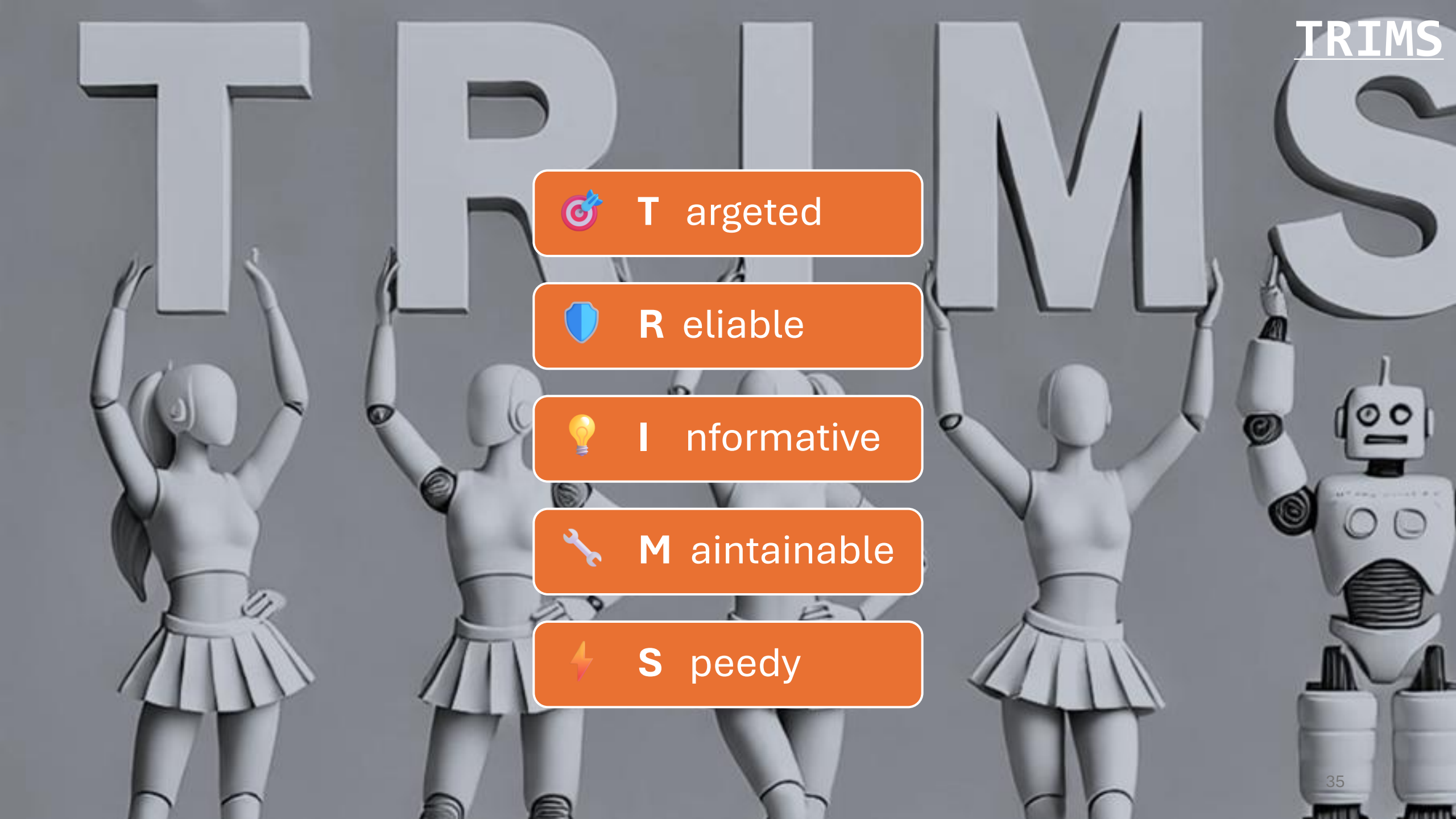
        Context.DummyC = null;
        Context.DummyD = null;
        Context.DummyE = null;
    }
}
```

Legacy setup




- 🎯 **T** argeted
- 🛡️ **R** eliable
- 💡 **I** nformative
- 🔧 **M** aintainable
- ⚡ **S** peedy

# To summarize

**Greenfield**: Start parallel testing early—initial setup is simple.

**Implementation:** Use scenario tags, JSON config, and custom code if needed.

**Legacy:** Use a phased approach to introduce parallel runs.

**Both:** Clear custom logging is essential for quick issue tracing.

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