

Experiment ‘p4_1_b_sum_squares’ Results

December 18, 2025

Experiment outcome: SUCCESS

Bad responses: 0

Responses containing assume : 0

Resolution attempts: 1

Hard fails (resolution): 0

Soft fails (resolution): 0

Verification attempts: 1

Problem Specification

Problem name: p4_1_b_sum_squares

Natural language statement: Write a method with loops that computes the sum of all squares between 1 and 100 (inclusive).

Method signature: p4_1_b_sum_squares() returns (sum: int)

Ensures

- `sum == 338350`

GenAI interactions

Below you will find all interactions between the ‘user’ (program) and the ‘assistant’ (OpenAI).

Program → GenAI

You are given the following task to perform in Dafny:

Write a method with loops that computes the sum of all squares between 1 and 100 (
↳ inclusive).

The signature should be:

```
method p4_1_b_sum_squares() returns (sum: int)
```

The method should respect the following contract:

```
ensures sum == 338350
```

Produce and show only the Dafny body of this method, including the curly braces that
↳ surround it. Do not show the signature nor contract. You must not use ‘assume’
↳ anywhere in your code.

GenAI → Program

System fingerprint:

ID: chatmpl-Co4ZPwAkfPxiredh96rK4mwn9c9GP

Model: gpt-5.1-chat-latest

Created at: 1766050003

Finish reason: stop

Usage: 258 tokens in, and 107 tokens out

```
{
    var i := 1;
    sum := 0;
    while i <= 100
        invariant 1 <= i <= 101
        invariant sum == (i - 1) * i * (2 * (i - 1) + 1) / 6
    {
        sum := sum + i * i;
        i := i + 1;
    }
}
```

Final Program

```
method p4_1_b_sum_squares() returns (sum: int)
    ensures sum == 338350
{
    var i := 1;
```

```
sum := 0;
while i <= 100
    invariant 1 <= i <= 101
    invariant sum == (i - 1) * i * (2 * (i - 1) + 1) / 6
{
    sum := sum + i * i;
    i := i + 1;
}
}
```

Total Token Usage

Input tokens: 258

Output tokens: 107

Reasoning tokens: 0

Sum of ‘total tokens’: 365

Experiment Timings

Overall Experiment started at 1766050005554, ended at 1766050009036, lasting 3482ms (3.48 seconds)

Iteration #1 started at 1766050005554, ended at 1766050009036, lasting 3482ms (3.48 seconds)