What does this line do?

byte years = scanner.nextByte();

This means:

"Take user input and store it in a variable called years, using the byte data type."

Code error breakdown

Why use byte?

- byte is a small data type in Java.
- It can store numbers from -128 to 127.
- Since most **loan durations** (like 5, 10, 20, 30 years) easily fit in this range, using byte **saves memory**.

Comparison:

Data Type	Range	Memory Used	Suitable For
byte	–128 to 127	1 byte	small numbers like years, age, etc.
short	-32,768 to 32,767	2 bytes	medium numbers
int	−2 billion to +2 billion	4 bytes	large numbers

6 So in short:

You use byte for years because:

- Years are usually small (1–30).
- It uses **less memory** than int.
- It's **perfectly enough** for this case.

✓ Can you use int instead?

Yes! This is also fine:

```
int years = scanner.nextInt();
```

But byte is a cleaner choice for small numbers.

Let me know if you want a simple chart of all Java data types!

1 byte = 8 bits

Yes, you're absolutely right!

1 byte = 8 bits

E Simple Explanation:

- A bit is the smallest unit of data in a computer it can be 0 or 1.
- A byte is a group of 8 bits.

So:

```
1 byte = 8 bits = can represent 2^8 = 256 different values
```

In Java:

byte is a data type that:

- Uses 1 byte (8 bits)
- Stores whole numbers
- Range:

-128 to 127

8/8/25, 5:27 PM Code error breakdown

Why? Because it includes **both positive and negative** numbers using a system called **two's complement**.

```
* Example:
```

```
byte a = 100; // ✓ valid byte b = 128; // ✗ error: value out of range
```

Let me know if you want a full table of Java data types with sizes and ranges!