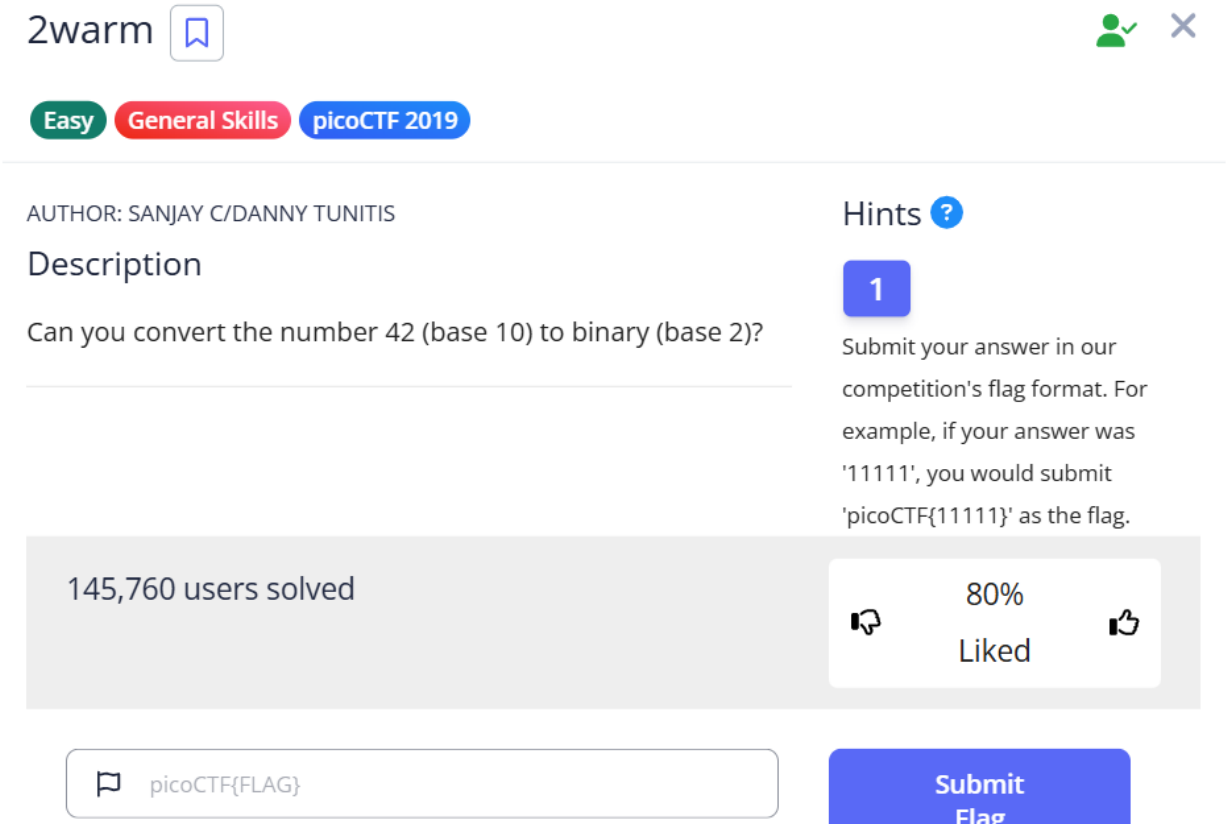
Saint Columban College
College of Computing Studies
Pagadian City

2warm



Author: The Analyst: Hyposelenia

Challenge: 2warm

Category: General Skills

Date: 01/13/26

I. Objective

The objective of this task was to convert a given decimal (base 10) number into **binary (base 2)** and submit it in the required flag format.

II. Background

In computer systems, numbers can be represented in **different bases**:

- **Base 10 (Decimal):** The normal numbers we use every day (0–9)
- **Base 2 (Binary):** Only uses 0 and 1, which is how computers store and process data

This challenge demonstrates the importance of understanding **how numbers are represented in computers**.

III. Tool Used

- **Rapidtables.com – Base Converter**
  Used to quickly convert decimal numbers to binary without manually calculating each place value.

IV. Methodology

1. Opened the website that allows base conversions:

   https://www.rapidtables.com/convert/number/base-converter.html

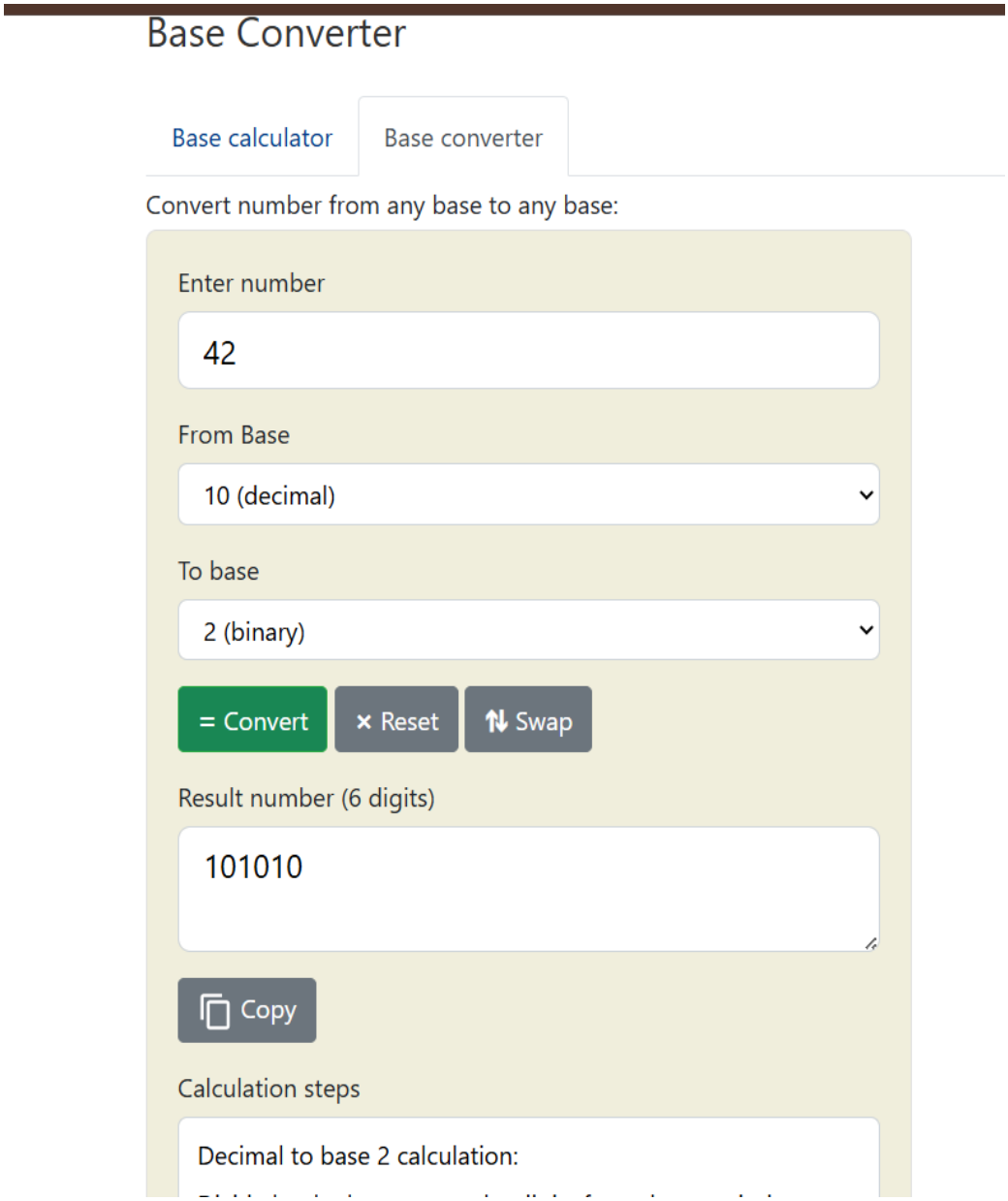
2. Entered the decimal number `42` in the input field.
3. Selected **base 10 → base 2** conversion.
4. Clicked **Convert**.
5. The website returned the binary value:

   `101010`

6. Copied the result and placed it inside the picoCTF flag format.

V. Result

picoCTF{101010}



VI. Explanation

- Decimal numbers (base 10) are what we normally use in daily life.
- Binary numbers (base 2) are what computers understand internally. Each digit in binary represents a **power of 2**.
- The challenge gave 42 in decimal. Converting it to binary gives 101010, which can be verified manually:
  - 42 ÷ 2 = 21 remainder 0 → least significant bit
  - 21 ÷ 2 = 10 remainder 1
  - 10 ÷ 2 = 5 remainder 0
  - 5 ÷ 2 = 2 remainder 1
  - 2 ÷ 2 = 1 remainder 0
  - 1 ÷ 2 = 0 remainder 1 → most significant bit
- Reading the remainders from top to bottom → **101010**
- Using the website is just a fast method to **avoid manual calculation**, but the logic is the same.

VII. Conclusion

This challenge reinforces the concept of **number bases** and demonstrates how decimal numbers are converted into binary. Understanding base conversions is essential in cybersecurity and computer science because computers use **binary internally**, and many CTF challenges require converting between bases.

— **The Analyst: Hyposelenia**