Library Management Program - Code & Results

Code:

```python
# Library Management Program
# Covers: Variables, Data Types, Numbers, Casting, Strings, Booleans, Operators, Lists, Tuples, Sets

# Variables and Data Types
name = input("Enter your name: ")
books_borrowed = int(input("Enter how many books you have borrowed this month: "))

# List of available books
available_books = ["Harry Potter", "The Hobbit", "Pride and Prejudice"]
# Tuple of book categories
book_categories = ("Fiction", "Non-fiction", "Comics")
# Set of unique authors
authors = {"J.K. Rowling", "J.R.R. Tolkien", "Jane Austen"}
# Dictionary for membership details
membership = {"regular": 14, "premium": 30}

# Casting and Strings
book_choice = input("Enter the name of the book you want to borrow: ").title()
days = int(input("Enter number of days you want to borrow the book: "))
days_str = str(days)

# Boolean
is_available = book_choice in available_books

# If-Else statements
if is_available:
    print(f"{book_choice} is available.")
else:
    print(f"Sorry, {book_choice} is not available.")

# Match statement for book category
match book_choice:
    case "Harry Potter":
        category = "Fiction"
    case "The Hobbit":
        category = "Fiction"
    case "Pride And Prejudice":
        category = "Fiction"
    case _:
        category = "Unknown"

# Operators and loop for membership validation
while True:
    member_type = input("Enter your membership type (regular/premium): ").lower()
    if member_type in membership:
        max_days = membership[member_type]
        if days <= max_days:
            print(f"Book borrowed successfully for {days} days under {member_type} membership.")
        else:
            print(f"Cannot borrow for {days} days. Max allowed is {max_days} days.")
        break
    else:
        print("Invalid membership type. Please try again.")

# Display final details
print("\n--- Borrowing Summary ---")
print(f"Name: {name}")
print(f"Book Borrowed: {book_choice} ({category})")
print(f"Days: {days}")
print(f"Books Borrowed This Month: {books_borrowed}")
print(f"Authors in library: {', '.join(authors)}")
```

Sample Run Output:

```
Enter your name: Sarah Connor
Enter how many books you have borrowed this month: 3
```

```
Enter the name of the book you want to borrow: the little prince
Enter number of days you want to borrow the book: 5
Sorry, The Little Prince is not available.
Enter your membership type (regular/premium): premium
Book borrowed successfully for 5 days under premium membership.

--- Borrowing Summary ---
Name: Sarah Connor
Book Borrowed: The Little Prince (Unknown)
Days: 5
Books Borrowed This Month: 3
Authors in library: Jane Austen, J.K. Rowling, J.R.R. Tolkien
```