AI ASSISTANT CODING

ASSIGNMENT 9.1

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Batch : 27

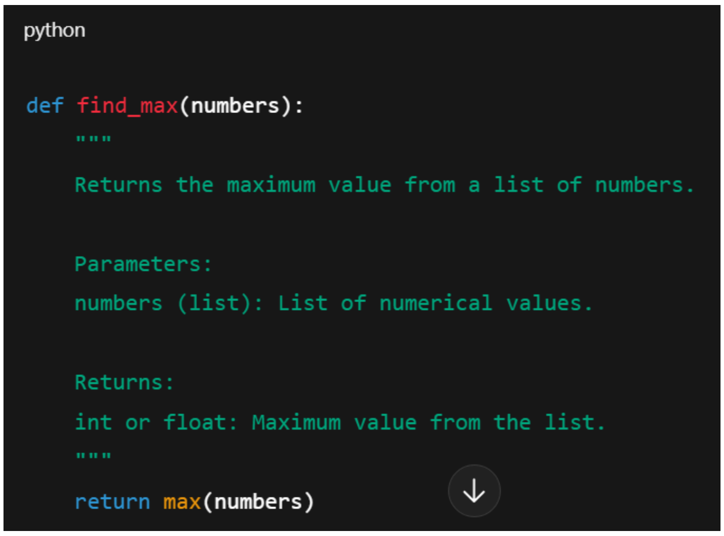
QUESTION 1

PROMPT:

Write documentation in:

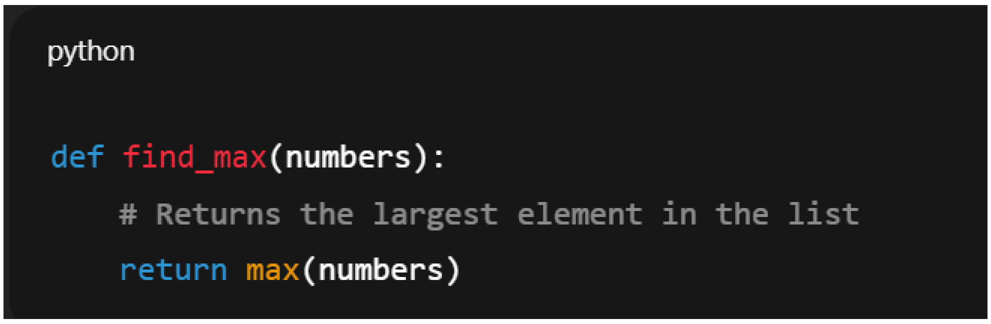
1. Docstring format
2. Inline comments
3. Google-style documentation
   Also compare the three approaches and recommend the best style for a mathematical utilities library.

CODE:



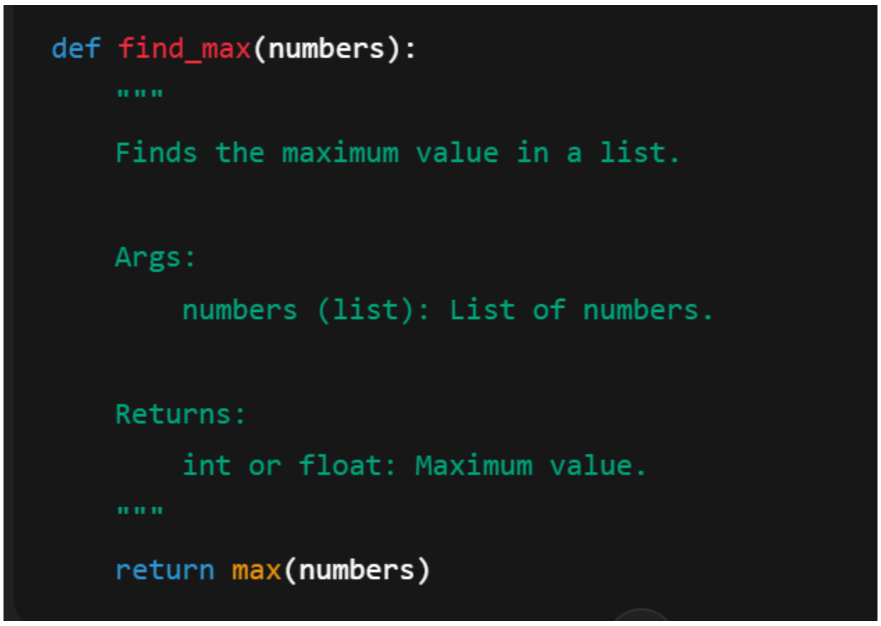
```python
def find_max(numbers):
    """
    Returns the maximum value from a list of numbers.

    Parameters:
    numbers (list): List of numerical values.

    Returns:
    int or float: Maximum value from the list.
    """
    return max(numbers)
```

INLINE COMMENTS:

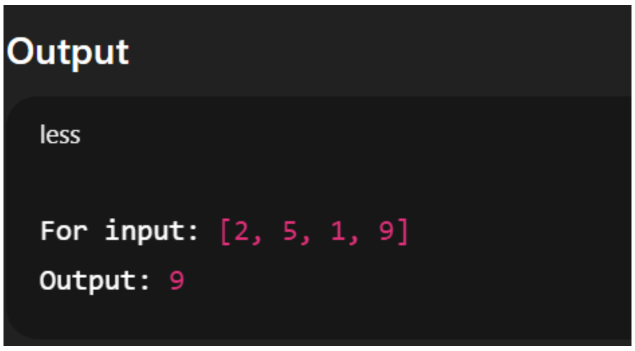


```python
def find_max(numbers):
    # Returns the largest element in the list
    return max(numbers)
```

GOOGLE STYLE DOCUMENTATION:



```python
def find_max(numbers):
    """
    Finds the maximum value in a list.

    Args:
        numbers (list): List of numbers.

    Returns:
        int or float: Maximum value.
    """
    return max(numbers)
```



Output

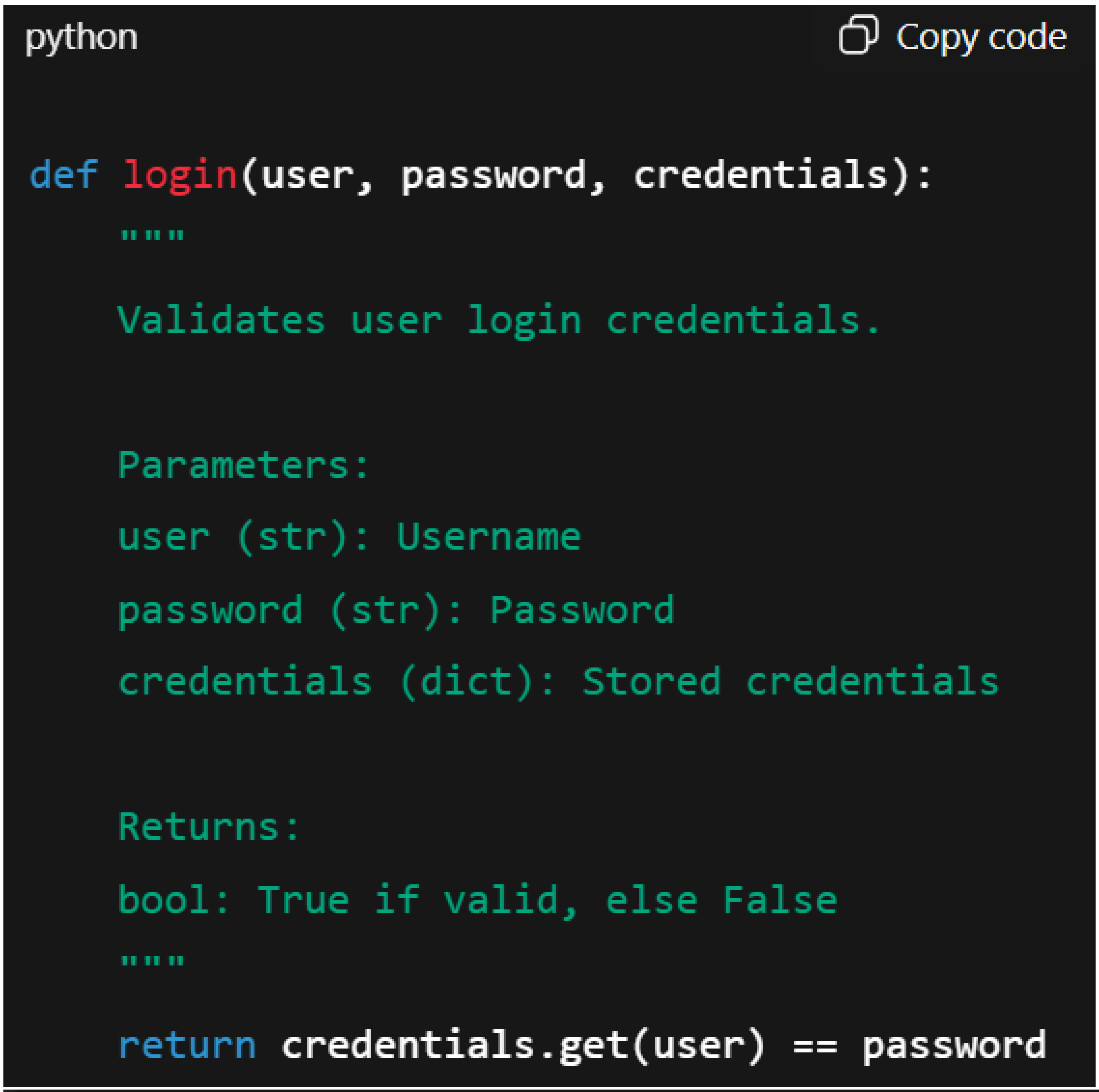
```less
For input: [2, 5, 1, 9]
Output: 9
```

QUESTION 2:

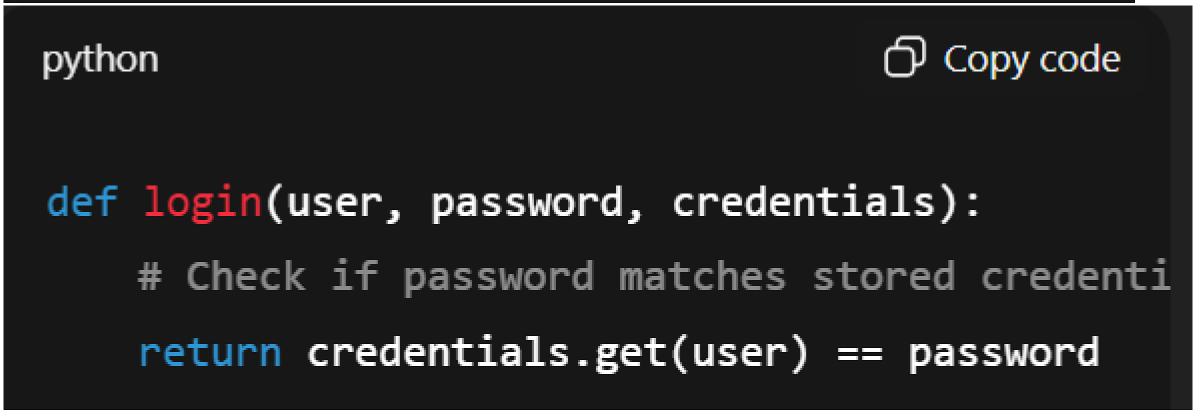
PROMPT:

Write documentation in three formats and recommend the best style for new developers.

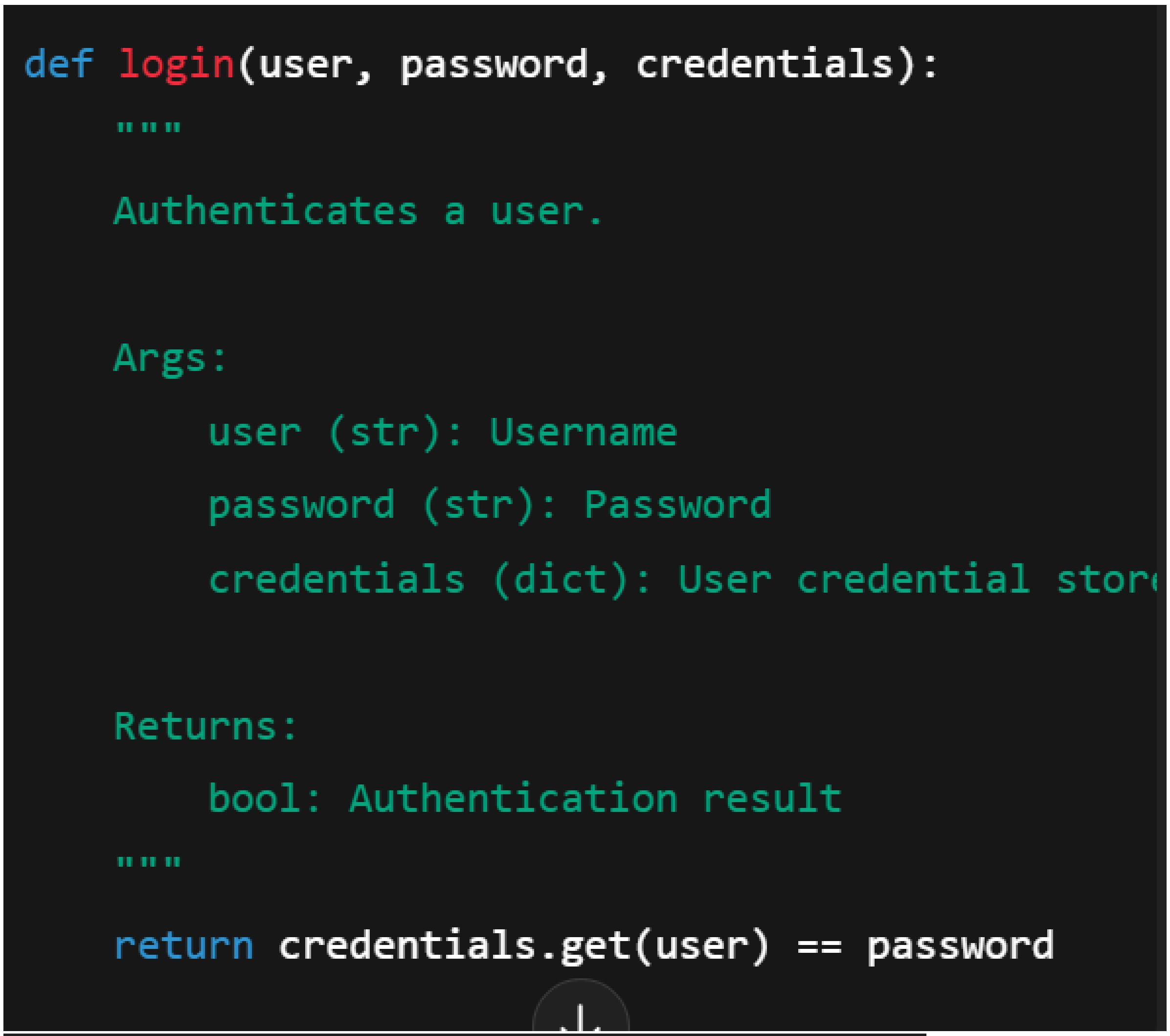
CODE:



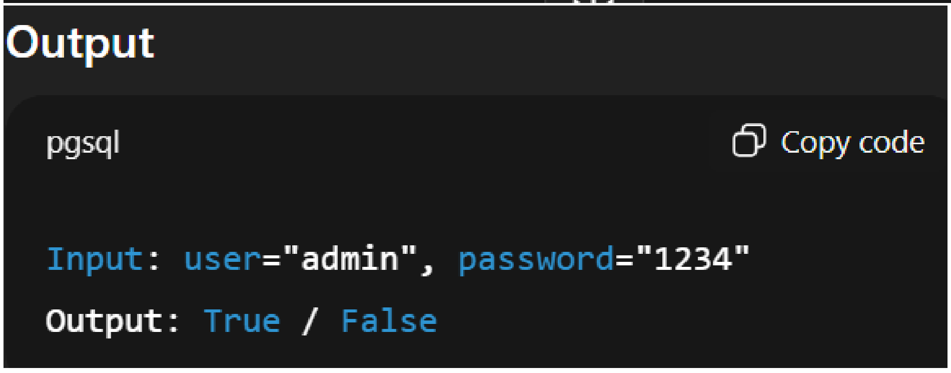
```python
def login(user, password, credentials):
    """
    Validates user login credentials.

    Parameters:
    user (str): Username
    password (str): Password
    credentials (dict): Stored credentials

    Returns:
    bool: True if valid, else False
    """
    return credentials.get(user) == password
```



```python
def login(user, password, credentials):
    # Check if password matches stored credenti
    return credentials.get(user) == password
```



```python
def login(user, password, credentials):
    """
    Authenticates a user.

    Args:
        user (str): Username
        password (str): Password
        credentials (dict): User credential stor

    Returns:
        bool: Authentication result
    """
    return credentials.get(user) == password
```



Output

pgsql

```
Input: user="admin", password="1234"
Output: True / False
```

EXPLANATION:

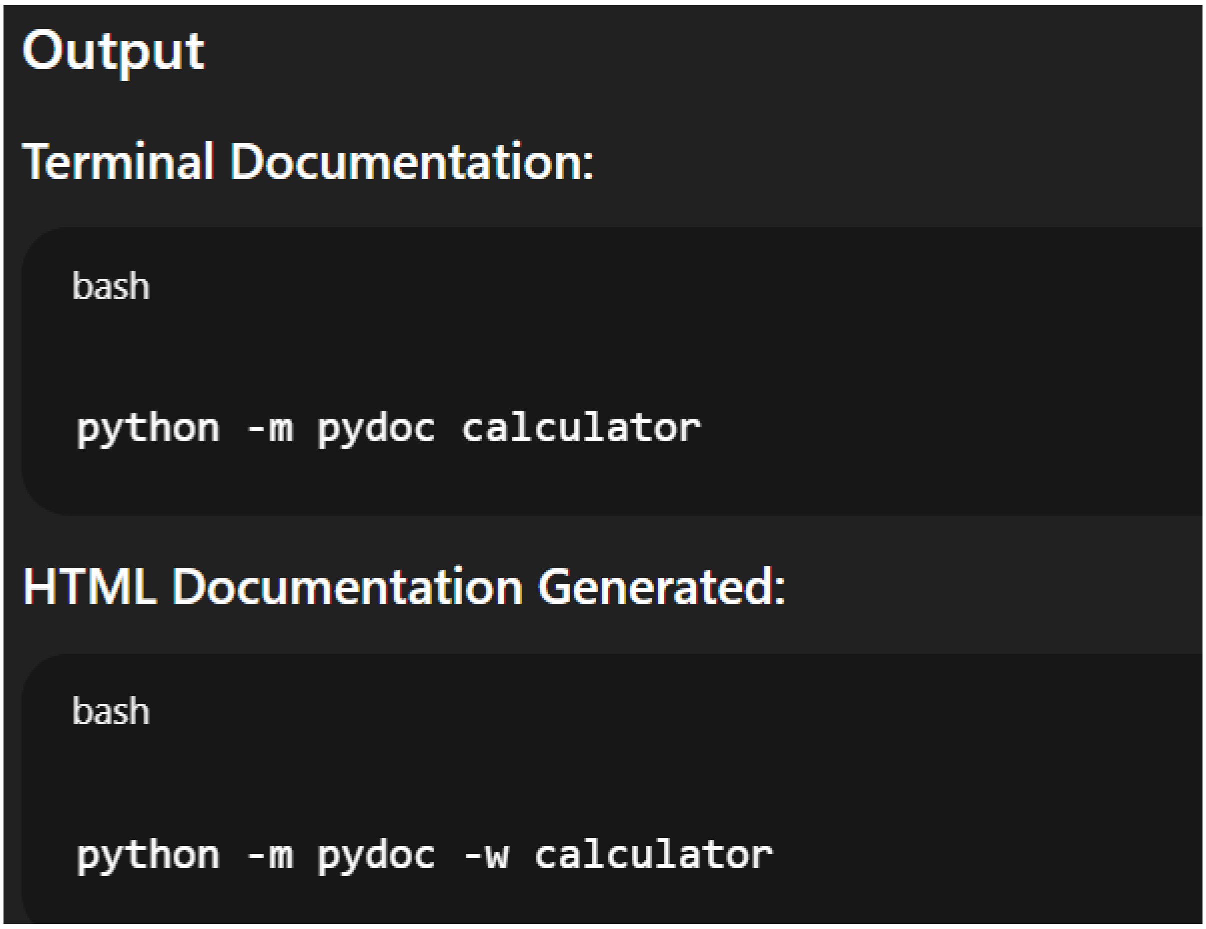
Google-style documentation is most helpful for new developers as it clearly explains parameters and return values in a structured manner.

QUESTION 3:

PROMPT:
Design a Python module calculator.py and demonstrate automatic documentation generation.

CODE:

```python
"""
Conversion Utilities Module
"""


def decimal_to_binary(n):
    """Converts decimal to binary."""
    return bin(n)[2:]


def binary_to_decimal(b):
    """Converts binary to decimal."""
    return int(b, 2)


def decimal_to_hexadecimal(n):
    """Converts decimal to hexadecimal."""
    return hex(n)[2:]
```



Output

Terminal Documentation:

bash

```bash
python -m pydoc calculator
```

HTML Documentation Generated:

bash

```bash
python -m pydoc -w calculator
```

EXPLANATION:

Explanation

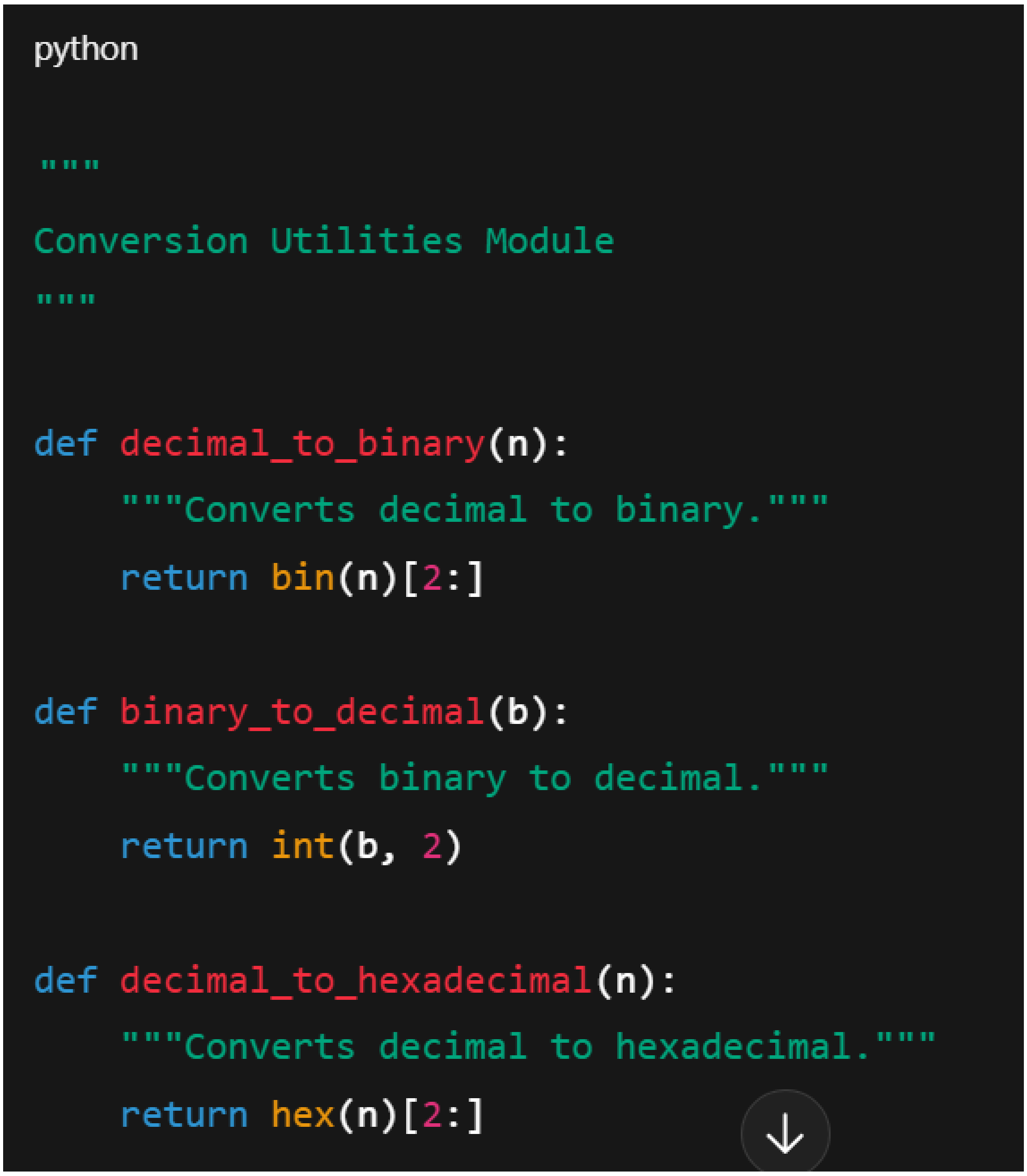
- Docstrings allow automatic documentation generation.
- pydoc extracts function and module details.
- HTML output provides readable documentation.

PROBLEN 4:

PROMPT:

Create conversion.py and generate documentation automatically.

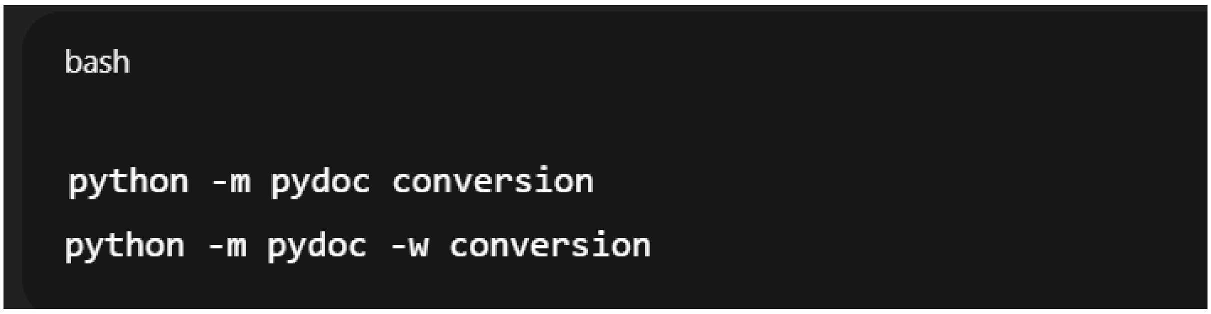
CODE:



python

```python
"""
Conversion Utilities Module
"""

def decimal_to_binary(n):
    """Converts decimal to binary."""
    return bin(n)[2:]

def binary_to_decimal(b):
    """Converts binary to decimal."""
    return int(b, 2)

def decimal_to_hexadecimal(n):
    """Converts decimal to hexadecimal."""
    return hex(n)[2:]
```

OUTPUT:



```bash
python -m pydoc conversion
python -m pydoc -w conversion
```

EXPLANATION:

Automatic documentation improves understanding of conversion utilities and supports reuse.

PROBLEM 5:

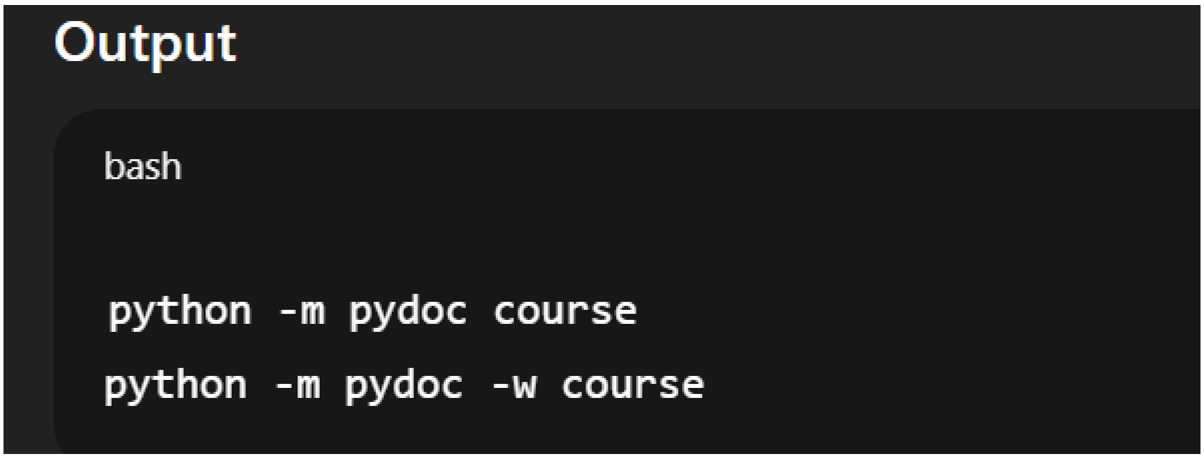
PROMPT:

Create course.py and generate documentation.

CODE:

```
"""
Course Management Module
"""

courses = {}

def add_course(course_id, name, credits):
    """Adds a course."""
    courses[course_id] = {"name": name, "credits": credits}

def remove_course(course_id):
    """Removes a course."""
    return courses.pop(course_id, None)

def get_course(course_id):
    """Gets course details."""
    return courses.get(course_id)
```

OUTPUT:



```bash
python -m pydoc course
python -m pydoc -w course
```

Explanation

Course functions are documented using docstrings which allow automatic documentation generation.