

**School of Computer Science and Artificial Intelligence**

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**Lab Assignment # 6**

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**Task Description #1 (AI-Based Code Completion for Conditional Eligibility Check)**

**Task:** Use an AI tool to generate eligibility logic.

**Prompt:**

“write a check eligibility for voting based on age and citizenship.”

**CODE:**

```
#task-1
#write a check eligibility for voting based on age and citizenship
age = int(input("Enter your age: "))
citizenship = input("Are you a citizen? (yes/no): ").strip().lower()
if age >= 18 and citizenship == 'yes':
    print("You are eligible to vote.")
else:
    print("You are not eligible to vote.")
```

**OUTPUT:**

```
Enter your age: 16
Are you a citizen? (yes/no): yes
You are not eligible to vote.

PS C:\AIAC-LAB> ^C
PS C:\AIAC-LAB>
PS C:\AIAC-LAB> c:; cd 'c:\AIAC-LAB'
hon.debugpy-2025.19.2026012701-win32-
Enter your age: 20
Are you a citizen? (yes/no): yes
You are eligible to vote.

PS C:\AIAC-LAB>
```

**Justification:** The code checks if the user is 18 years or older and if they are a citizen. If both conditions are met, it prints that the user is eligible to vote; otherwise, it states they are not eligible.

## Task Description #2(AI-Based Code Completion for Loop-Based String Processing)

**Task:** Use an AI tool to process strings using loops.

**Prompt:** write a program to count vowels and consonants in a given string

**Code:**

```
#task-2
#write a program to count vowels and consonants in a given string
string = input("Enter a string: ")
vowels = "aeiouAEIOU"
vowel_count = 0
consonant_count = 0
for char in string:
    if char.isalpha():
        if char in vowels:
            vowel_count += 1
        else:
            consonant_count += 1
print(f"Vowels: {vowel_count}, Consonants: {consonant_count}")
```

**Output:**

```
Enter a string: sai teja
Vowels: 4, Consonants: 3
PS C:\AIAC-LAB> []
```

**Justification:**

→The first task checks if a person is eligible to vote based on their age and citizenship status. It uses conditional statements to determine eligibility.

→The second task counts the number of vowels and consonants in a given string by iterating through each character and checking if it is a vowel or consonant.

## Task Description #3 (AI-Assisted Code Completion Reflection Task)

**Task:** Use an AI tool to generate a complete program using classes, loops, and conditionals.

**Prompt:** write a program for library management system using classes, loops and conditional statements

**Output:**

```
#task-3
#write a program for library management system using classes, loops and conditional statements
class Library:
    def __init__(self):
        self.books = []

    def add_book(self, book):
        self.books.append(book)
        print(f'Book "{book}" added to the library.')

    def remove_book(self, book):
        if book in self.books:
            self.books.remove(book)
            print(f'Book "{book}" removed from the library.')
        else:
            print(f'Book "{book}" not found in the library.')

    def display_books(self):
        if self.books:
            print("Books in the library:")
            for book in self.books:
                print(f'- {book}')
        else:
            print("No books in the library.")

library = Library()
while True:
    print("\nLibrary Management System")
    print("1. Add Book")
    print("2. Remove Book")
    print("3. Display Books")
    print("4. Exit")
    choice = input("Enter your choice (1-4): ")
    if choice == '1':
        book = input("Enter the book name to add: ")
        library.add_book(book)
    elif choice == '2':
        book = input("Enter the book name to remove: ")
        library.remove_book(book)
    elif choice == '3':
        library.display_books()
    elif choice == '4':
        print("Exiting the program.")
        break
    else:
        print("Invalid choice. Please try again.")
```

**Output:**

```
2. Remove Book
3. Display Books
4. Exit
Enter your choice (1-4): 1
Enter the book name to add: HPC
Book "HPC" added to the library.
```

```
Library Management System
1. Add Book
2. Remove Book
3. Display Books
4. Exit
Enter your choice (1-4): 3
Books in the library:
- AIAC
- CP
- HPC
```

```
Library Management System
1. Add Book
2. Remove Book
3. Display Books
4. Exit
Enter your choice (1-4): 2
Enter the book name to remove: HPC
Book "HPC" removed from the library.
```

```
Library Management System
1. Add Book
2. Remove Book
3. Display Books
4. Exit
Enter your choice (1-4): 4
Exiting the program.
PS C:\AIAC-LAB> █
```

**Justification:**

- The Library class encapsulates the functionality of a library management system.
- It includes methods to add, remove, and display books.

→ A while loop is used to continuously prompt the user for actions until they choose to exit.

### Task Description #4 (AI-Assisted Code Completion for Class-Based Attendance System)

**Task:** Use an AI tool to generate an attendance management class.

**Prompt:** Write a python program class to mark attendance of students in a class using class, loops and conditional statements

**Code:**

```
#task-4
#write a python program class to mark attendance of students in a class using class, loops and conditional statements
class Attendance:
    def __init__(self):
        self.attendance_record = {}

    def mark_attendance(self, student_name, present):
        self.attendance_record[student_name] = present
        status = "present" if present else "absent"
        print(f"{student_name} marked as {status}.") 

    def display_attendance(self):
        print("Attendance Record:")
        for student, present in self.attendance_record.items():
            status = "Present" if present else "Absent"
            print(f"{student}: {status}")

attendance = Attendance()
while True:
    print("\nAttendance Management System")
    print("1. Mark Attendance")
    print("2. Display Attendance")
    print("3. Exit")
    choice = input("Enter your choice (1-3): ")
    if choice == '1':
        student_name = input("Enter the student's name: ")
        present_input = input("Is the student present? (yes/no): ").strip().lower()
        present = True if present_input == 'yes' else False
        attendance.mark_attendance(student_name, present)
    elif choice == '2':
        attendance.display_attendance()
    elif choice == '3':
        print("Exiting the program.")
        break
    else:
        print("Invalid choice. Please try again.")
```

### Justification:

→ This program uses a class to encapsulate attendance functionality, loops to allow multiple operations,  
→ and conditional statements to handle user input and attendance status.

**Output:**

```
Attendance Management System
1. Mark Attendance
2. Display Attendance
3. Exit
Enter your choice (1-3): 1
Enter the student's name: sagar
Is the student present? (yes/no): no
sagar marked as absent.
```

```
Attendance Management System
1. Mark Attendance
2. Display Attendance
3. Exit
Enter your choice (1-3): 1
Enter the student's name: shiva
Is the student present? (yes/no): yes
shiva marked as present.
```

```
Attendance Management System
1. Mark Attendance
2. Display Attendance
3. Exit
Enter your choice (1-3): 2
Attendance Record:
sai teja: Present
phanikumar: Present
sagar: Absent
shiva: Present
```

```
Attendance Management System
1. Mark Attendance
2. Display Attendance
3. Exit
Enter your choice (1-3): 3
Exiting the program.
PS C:\AIAC-LAB> █
```

## Task Description #5 (AI-Based Code Completion for Conditional Menu Navigation)

**Task:** Use an AI tool to complete a navigation menu.

**Prompt:** write a program using loops and conditional statements to simulate an atm menu(ai tools basic atm functions)

**Code:**

```
#task-5
#write a program using loops and conditional statements to simulate an atm menu(ai tools basic atm functions)
class ATM:
    def __init__(self, balance=0):
        self.balance = balance

    def deposit(self, amount):
        if amount > 0:
            self.balance += amount
            print(f"Deposited: ${amount:.2f}")
        else:
            print("Deposit amount must be positive.")

    def withdraw(self, amount):
        if amount > 0:
            if amount <= self.balance:
                self.balance -= amount
                print(f"Withdraw: ${amount:.2f}")
            else:
                print("Insufficient funds.")
        else:
            print("Withdrawal amount must be positive.")

    def check_balance(self):
        print(f"Current balance: ${self.balance:.2f}")

atm = ATM()
while True:
    print("\nATM Menu")
    print("1. Deposit")
    print("2. Withdraw")
    print("3. Check Balance")
    print("4. Exit")
    choice = input("Enter your choice (1-4): ")
    if choice == '1':
        amount = float(input("Enter amount to deposit: "))
        atm.deposit(amount)
    elif choice == '2':
        amount = float(input("Enter amount to withdraw: "))
        atm.withdraw(amount)
    elif choice == '3':
        atm.check_balance()
    elif choice == '4':
        print("Exiting the ATM. Thank you!")
        break
    else:
        print("Invalid choice. Please try again.")
```

**Output:**

4. Exit

Enter your choice (1-4): 1

Enter amount to deposit: 4000

Deposited: \$4000.00

ATM Menu

1. Deposit

2. Withdraw

3. Check Balance

4. Exit

Enter your choice (1-4): 1

Enter amount to deposit: 600

Deposited: \$600.00

ATM Menu

1. Deposit

2. Withdraw

3. Check Balance

4. Exit

Enter your choice (1-4): 2

Enter amount to withdraw: 300

Withdrew: \$300.00

ATM Menu

1. Deposit

2. Withdraw

3. Check Balance

4. Exit

Enter your choice (1-4): 3

Current balance: \$4300.00

ATM Menu

1. Deposit

2. Withdraw

3. Check Balance

4. Exit

Enter your choice (1-4): 4

Exiting the ATM. Thank you!

**Justification:**

→ The program simulates an ATM menu with basic functions such as deposit, withdraw, and check balance.

→ It uses a class to encapsulate the ATM functionality and employs loops and conditional statements to interact with the user.