

# AI Assisted Coding Assignment - 6.5

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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: "Generate Python code to check voting eligibility based on age and citizenship." Code:

The screenshot shows a Jupyter Notebook interface with a code cell containing a Python script named `check_voting_eligibility`. The script prompts the user for their age and citizenship status, then checks if they are eligible to vote based on their age (18 or older) and citizenship ('yes'). It handles errors for invalid input and negative ages.

```
Lab_6.5.py > check_voting_eligibility
1 # Task 1:
2 # generate a python code to check voting eligibility based on age and citizenship, taking inputs from the user. Include all the possible edge cases and handle all the error
3 def check_voting_eligibility():
4     try:
5         age = int(input("Enter your age: "))
6         citizenship = input("Are you a citizen? (yes/no): ").strip().lower()
7
8         if age < 0:
9             print("Age cannot be negative. Please enter a valid age.")
10            return
11
12         if citizenship not in ['yes', 'no']:
13             print("Invalid input for citizenship. Please enter 'yes' or 'no'.")
14             return
15
16         if age >= 18 and citizenship == 'yes':
17             print("You are eligible to vote.")
18         else:
19             print("You are not eligible to vote.")
20
21     except ValueError:
22         print("Invalid input. Please enter a valid age as a number.")
23 check_voting_eligibility()
```

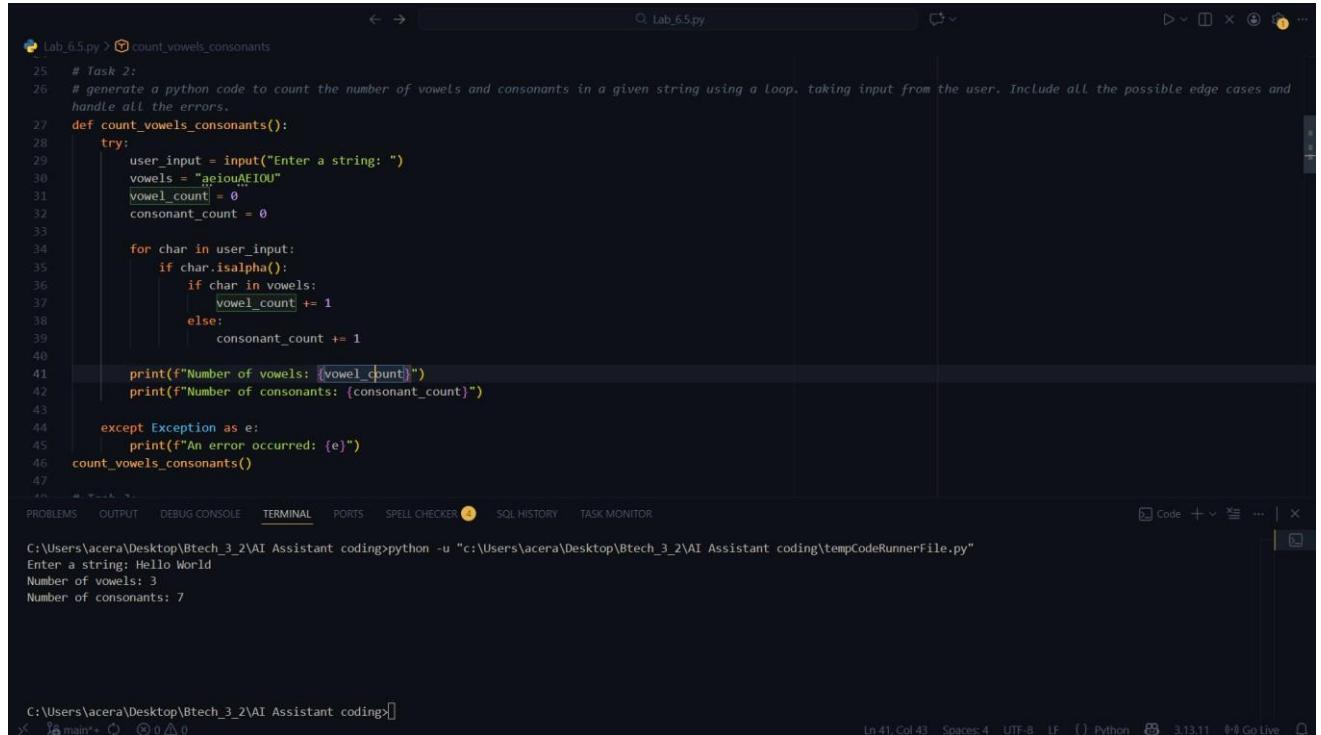
## Task Description #2

(AI-Based Code Completion for Loop-Based String Processing) Task:

Use an AI tool to process strings using loops.

Prompt:

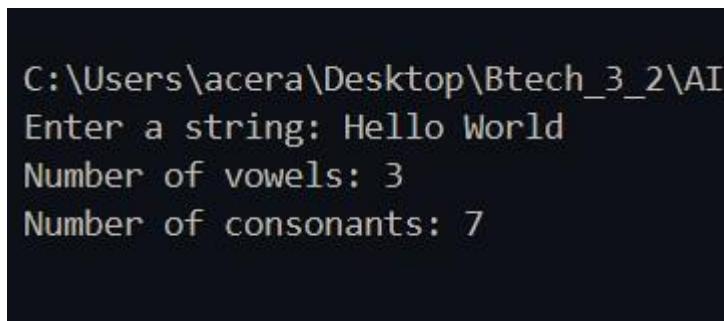
"Generate Python code to count vowels and consonants in a string using a loop." Code:



```
Lab_6.5.py > count_vowels_consonants
25 # Task 2:
26 # generate a python code to count the number of vowels and consonants in a given string using a Loop, taking input from the user. Include all the possible edge cases and
27 # handle all the errors.
28 def count_vowels_consonants():
29     try:
30         user_input = input("Enter a string: ")
31         vowels = "aeiouAEIOU"
32         vowel_count = 0
33         consonant_count = 0
34
35         for char in user_input:
36             if char.isalpha():
37                 if char in vowels:
38                     vowel_count += 1
39                 else:
40                     consonant_count += 1
41
42         print(f"Number of vowels: {vowel_count}")
43         print(f"Number of consonants: {consonant_count}")
44
45     except Exception as e:
46         print(f"An error occurred: {e}")
47 count_vowels_consonants()

C:\Users\acera\Desktop\Btech_3_2\AI Assistant coding>python -u "c:\Users\acera\Desktop\Btech_3_2\AI Assistant coding\tempCodeRunnerFile.py"
Enter a string: Hello World
Number of vowels: 3
Number of consonants: 7
```

Output:



```
C:\Users\acera\Desktop\Btech_3_2\AI Assistant coding>
C:\Users\acera\Desktop\Btech_3_2\AI Assistant coding>Enter a string: Hello World
Number of vowels: 3
Number of consonants: 7
```

### 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:

"Generate a Python program for a library management system using classes, loops, and conditional statements."

Expected Output:

- Complete AI-generated program.
- Review of AI suggestions quality.

- Short reflection on AI-assisted coding experience. Code:

```

Lab_6.5.py > count_vowels_consonants
4/
48  # Task 3:
49  # generate a high level python program for a Library management system using classes , Loops and conditional statements. Try to include all the possible
50  # edge cases and handle all the errors.
51  class Book:
52      def __init__(self, title, author):
53          self.title = title
54          self.author = author
55          self.is_borrowed = False
56  class Library:
57      def __init__(self):
58          self.books = []
59
60      def add_book(self, book):
61          self.books.append(book)
62          print(f'Book "{book.title}" by {book.author} added to the library.')
63
64      def borrow_book(self, title):
65          for book in self.books:
66              if book.title == title:
67                  if not book.is_borrowed:
68                      book.is_borrowed = True
69                      print(f'You have borrowed "{book.title}"')
70                      return
71                  else:
72                      print(f'Sorry, "{book.title}" is already borrowed.')
73                      return
74          print(f'Sorry, the book "{title}" is not available in the library.')
75
76      def return_book(self, title):
77          for book in self.books:
78              if book.title == title:
79                  if book.is_borrowed:
80                      book.is_borrowed = False
81                      print(f'You have returned "{book.title}"')
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```

```

Lab_6.5.py > count_vowels_consonants
55  class Library:
85      print(f'Sorry, the book "{title}" does not belong to this library.')
86  def main():
87      library = Library()
88      while True:
89          print("\nLibrary Management System")
90          print("1. Add Book")
91          print("2. Borrow Book")
92          print("3. Return Book")
93          print("4. Exit")
94          choice = input("Enter your choice (1-4): ")
95
96          if choice == '1':
97              title = input("Enter book title: ")
98              author = input("Enter book author: ")
99              book = Book(title, author)
100             library.add_book(book)
101
102         elif choice == '2':
103             title = input("Enter the title of the book to borrow: ")
104             library.borrow_book(title)
105
106         elif choice == '3':
107             title = input("Enter the title of the book to return: ")
108             library.return_book(title)
109
110         elif choice == '4':
111             print("Exiting the Library Management System.")
112             break
113
114     if __name__ == "__main__":
115         main()
116

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS SPELL CHECKER SQL HISTORY TASK MONITOR

C:\Users\acera\Desktop\Btech\_3\_2\AI Assistant coding\

Output:

```

C:\Users\acera\Desktop\Btech_3_2\AI Assistant coding>python -u "c:\Users\acera\Desktop\Btech_3_2\AI Assistant coding\tempCodeRunnerFile.py"
Library Management System
1. Add Book
2. Borrow Book
3. Return Book
4. Exit
Enter your choice (1-4): 1
Enter book title: Tales
Enter book author: Herculus
Book "Tales" by Herculus added to the library.

Library Management System
1. Add Book
2. Borrow Book
3. Return Book
4. Exit
Enter your choice (1-4): 4
Exiting the Library Management System.

```

## Task Description #4

(AI-Assisted Code Completion for Class-Based Attendance System)

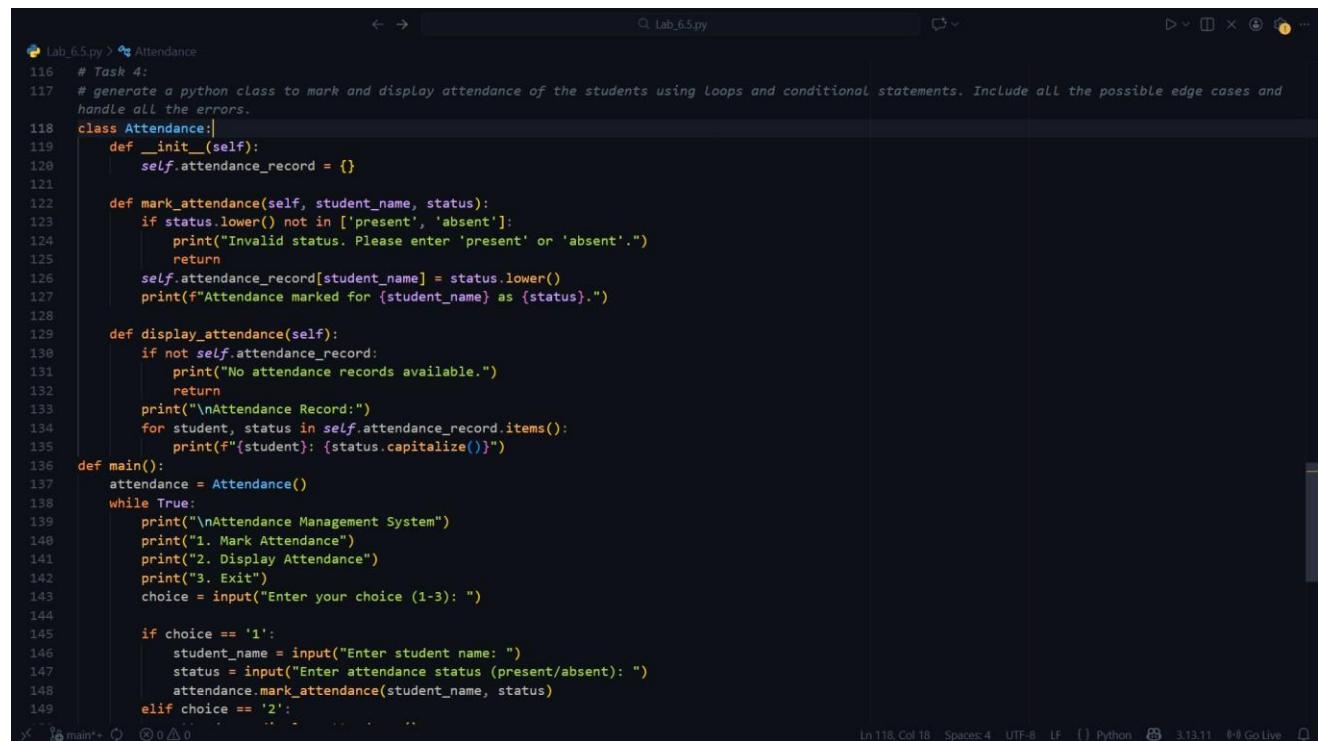
Task: Use an AI tool to generate an attendance management class.

Prompt: "Generate a Python class to mark and display student attendance using loops."

Expected Output:

- AI-generated attendance logic.
- Correct display of attendance.
- Test cases.

Code:



```
Lab_6.5.py > Attendance
116  # Task 4:
117  # generate a python class to mark and display attendance of the students using Loops and conditional statements. Include all the possible edge cases and
118  # handle all the errors.
119  class Attendance:
120      def __init__(self):
121          self.attendance_record = {}
122
123      def mark_attendance(self, student_name, status):
124          if status.lower() not in ['present', 'absent']:
125              print("Invalid status. Please enter 'present' or 'absent'.")
126              return
127          self.attendance_record[student_name] = status.lower()
128          print(f"Attendance marked for {student_name} as {status}.")
129
130      def display_attendance(self):
131          if not self.attendance_record:
132              print("No attendance records available.")
133              return
134          print("\nAttendance Record:")
135          for student, status in self.attendance_record.items():
136              print(f"{student}: {status.capitalize()}")
137
138  def main():
139      attendance = Attendance()
140      while True:
141          print("\nAttendance Management System")
142          print("1. Mark Attendance")
143          print("2. Display Attendance")
144          print("3. Exit")
145          choice = input("Enter your choice (1-3): ")
146
147          if choice == '1':
148              student_name = input("Enter student name: ")
149              status = input("Enter attendance status (present/absent): ")
150              attendance.mark_attendance(student_name, status)
151          elif choice == '2':
152              attendance.display_attendance()
153          else:
154              break
155
156  main()
```

The screenshot shows a code editor window with the file 'Lab\_6.5.py' open. The code defines a class 'Attendance' with methods for marking and displaying student attendance. It includes validation for the status input ('present' or 'absent'). The 'main' function provides a menu for marking attendance and displaying the record. The code is numbered from 116 to 156. The status bar at the bottom indicates the file is Python 3.13.11, with 118 lines and 18 columns.

The screenshot shows a code editor window with the file 'Lab\_6.5.py' open. The code defines a class 'Attendance' with methods for displaying student attendance and marking attendance. It also includes a main loop for user interaction. The code is color-coded for syntax highlighting.

```
Lab_6.5.py > Attendance
118  class Attendance:
119      def display_attendance(self):
120          for student, status in self.attendance_record.items():
121              print(f'{student}: {status.capitalize()}')
122
123  def main():
124      attendance = Attendance()
125      while True:
126          print("\nAttendance Management System")
127          print("1. Mark Attendance")
128          print("2. Display Attendance")
129          print("3. Exit")
130          choice = input("Enter your choice (1-3): ")
131
132          if choice == '1':
133              student_name = input("Enter student name: ")
134              status = input("Enter attendance status (present/absent): ")
135              attendance.mark_attendance(student_name, status)
136          elif choice == '2':
137              attendance.display_attendance()
138          elif choice == '3':
139              print("Exiting the Attendance Management System.")
140              break
141          else:
142              print("Invalid choice. Please enter a number between 1 and 3.")
143
144  if __name__ == "__main__":
145      main()
```

Output:

```
Attendance Management System
1. Mark Attendance
2. Display Attendance
3. Exit
Enter your choice (1-3): 1
Enter student name: sharan
Enter attendance status (present/absent): present
Attendance marked for sharan as present.
```

```
Attendance Management System
1. Mark Attendance
2. Display Attendance
3. Exit
Enter your choice (1-3): 2
```

```
Attendance Record:
sharan: Present
```

```
Attendance Management System
1. Mark Attendance
2. Display Attendance
3. Exit
Enter your choice (1-3): 3
Exiting the Attendance Management System.
```

#### Task Description #5

(AI-Based Code Completion for Conditional Menu Navigation)

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

Prompt: "Generate a Python program using loops and conditionals to simulate an ATM menu."

Expected Output:

- AI-generated menu logic.
- Correct option handling.
- Output verification Code:

The screenshot shows a terminal window with the following details:

- Title bar: Lab\_6.5.py > atm\_menu
- Code content:

```
161 # Task 5:
162 # Generate a python program using loops and conditional statements to simulate an ATM menu.
163 # Expected output :
164 # All generated menu logic for ATM menu:
165 # correct option handling.
166 # output verification.
167 def atm_menu():
168     balance = 1000 # Initial balance
169     while True:
170         print("\nATM Menu")
171         print("1. Check Balance")
172         print("2. Deposit Money")
173         print("3. Withdraw Money")
174         print("4. Exit")
175         choice = input("Enter your choice (1-4): ")
176
177         if choice == '1':
178             print(f"Your current balance is: ${balance}")
179         elif choice == '2':
180             try:
181                 amount = float(input("Enter the amount to deposit: "))
182                 if amount <= 0:
183                     print("Please enter a positive amount.")
184                 else:
185                     balance += amount
186                     print(f"You have deposited ${amount}. New balance: ${balance}")
187             except ValueError:
188                 print("Invalid input. Please enter a valid number.")
189         elif choice == '3':
190             try:
191                 amount = float(input("Enter the amount to withdraw: "))
192                 if amount <= 0:
193                     print("Please enter a positive amount.")
194                 elif amount > balance:
195                     print("Insufficient funds. Please enter a smaller amount.")
196                 else:
197                     balance -= amount
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```

The screenshot shows a terminal window with the following details:

- Title bar: Lab\_6.5.py > atm.menu
- File path: Lab\_6.5.py
- Code content:

```
167 def atm_menu():
168     balance += amount
169     print(f"You have deposited ${amount}. New balance: ${balance}")
170 except ValueError:
171     print("Invalid input. Please enter a valid number.")
172 elif choice == '3':
173     try:
174         amount = float(input("Enter the amount to withdraw: "))
175         if amount <= 0:
176             print("Please enter a positive amount.")
177         elif amount > balance:
178             print("Insufficient funds. Please enter a smaller amount.")
179         else:
180             balance -= amount
181             print(f"You have withdrawn ${amount}. New balance: ${balance}")
182     except ValueError:
183         print("Invalid input. Please enter a valid number.")
184 elif choice == '4':
185     print("Thank you for using the ATM. Goodbye!")
186     break
187 else:
188     print("Invalid choice. Please enter a number between 1 and 4.")
189
190 atm_menu()
191
```
- Bottom status bar: Ln 175, Col 52 | Spaces:4 | UTF-8 | LF | Python | 3.11.1 | Go Live

## Output:

The screenshot shows a code editor interface with a dark theme. At the top, there's a toolbar with icons for file operations like back, forward, and search. Below the toolbar, the title bar displays "Lab\_6.5.py > atm\_menu". The main area contains the Python code for an ATM menu and its execution output.

```
Lab_6.5.py > atm_menu
167 def atm_menu():
168     balance += amount
169     print(f"You have deposited ${amount}. New balance: ${balance}")
170
171 PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS SPELL CHECKER SQL HISTORY TASK MONITOR
```

The code defines a function `atm_menu()` that adds a deposited amount to a balance and prints the new balance. The terminal below shows four executions of the menu:

- First execution: Deposits \$100000.0, resulting in a new balance of \$101000.0.
- Second execution: Withdraws \$25000.0, resulting in a new balance of \$76000.0.
- Third execution: Checks the balance, showing \$76000.0.
- Fourth execution: Exits the menu.

At the bottom of the terminal, status information is displayed: Ln 175, Col 52, Spaces: 4, UTF-8, LF, Python 3.13.11, Go Live.