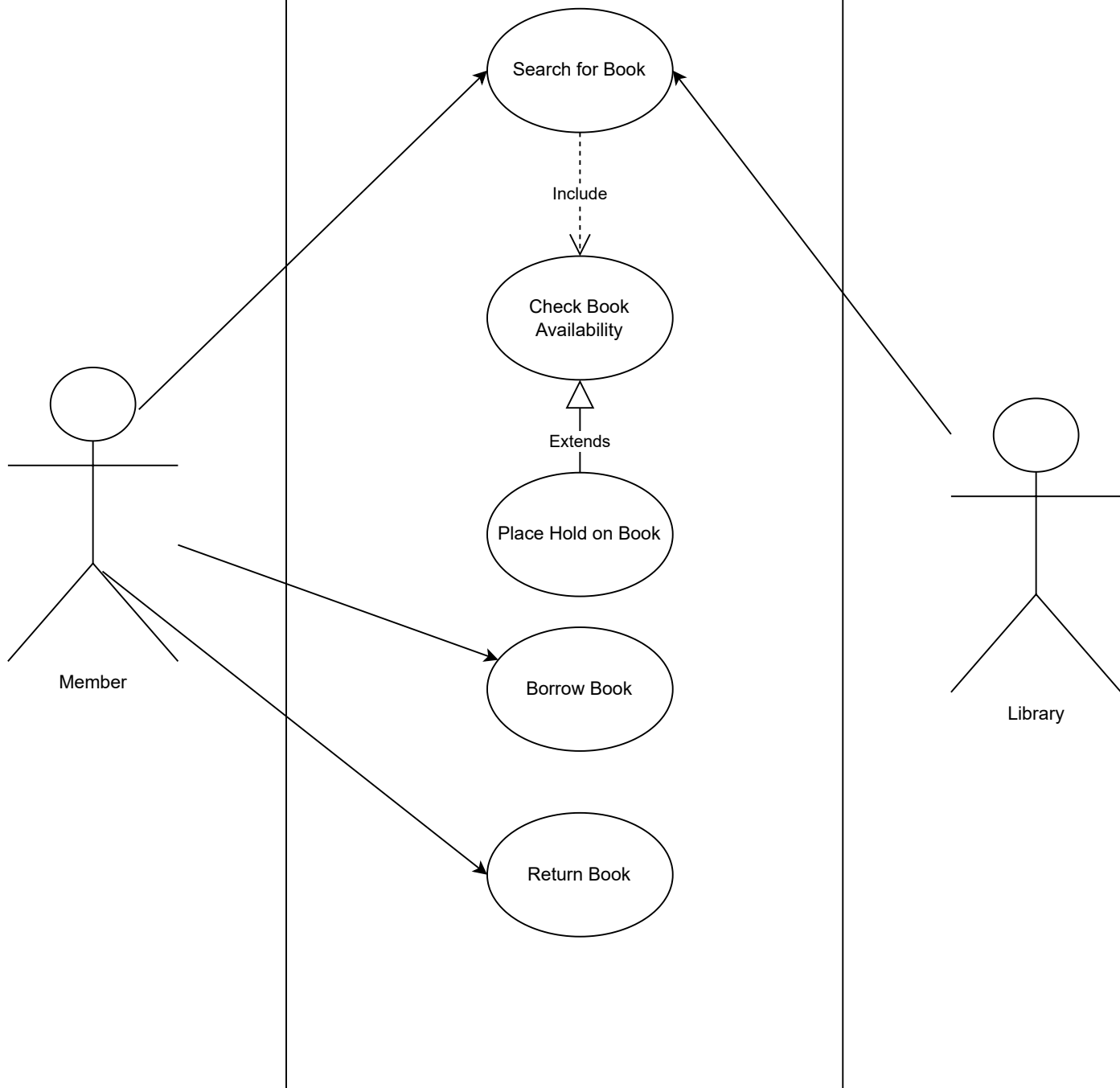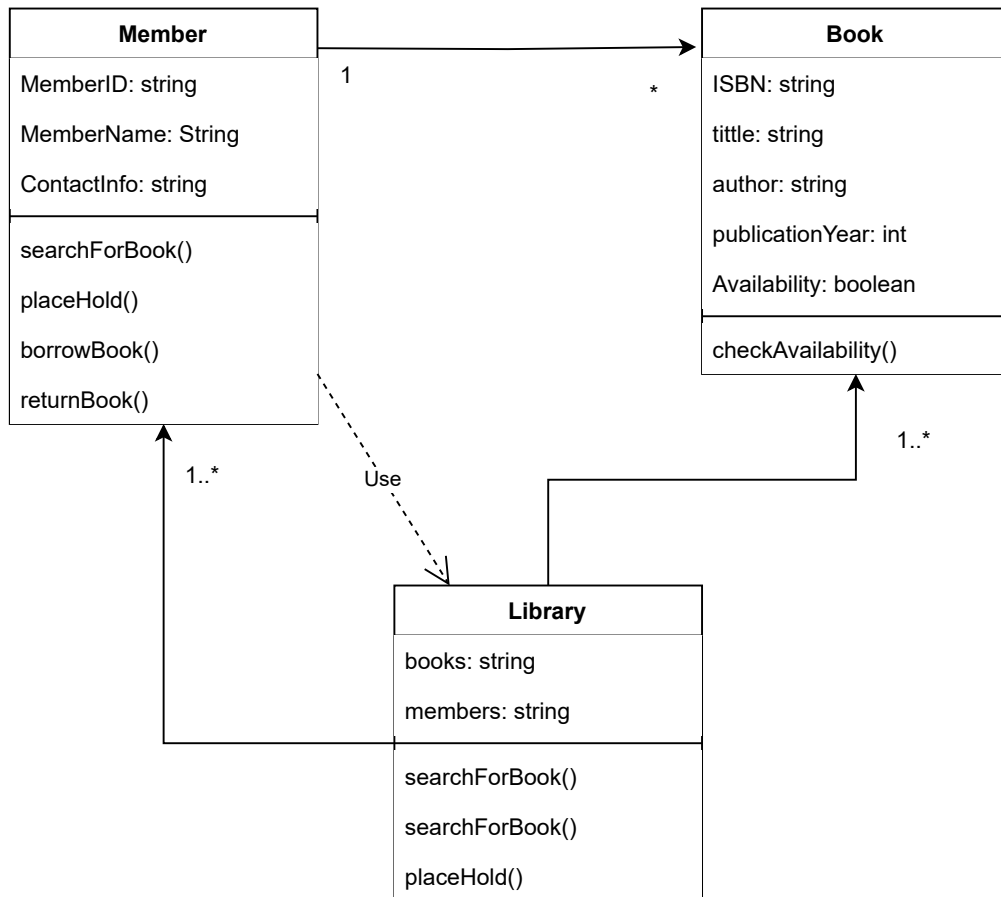**Q1: Use Case Diagram: (5 points)**
Identify the use cases for the library system and draw a use case diagram to depict the relationships between the actors and use cases.
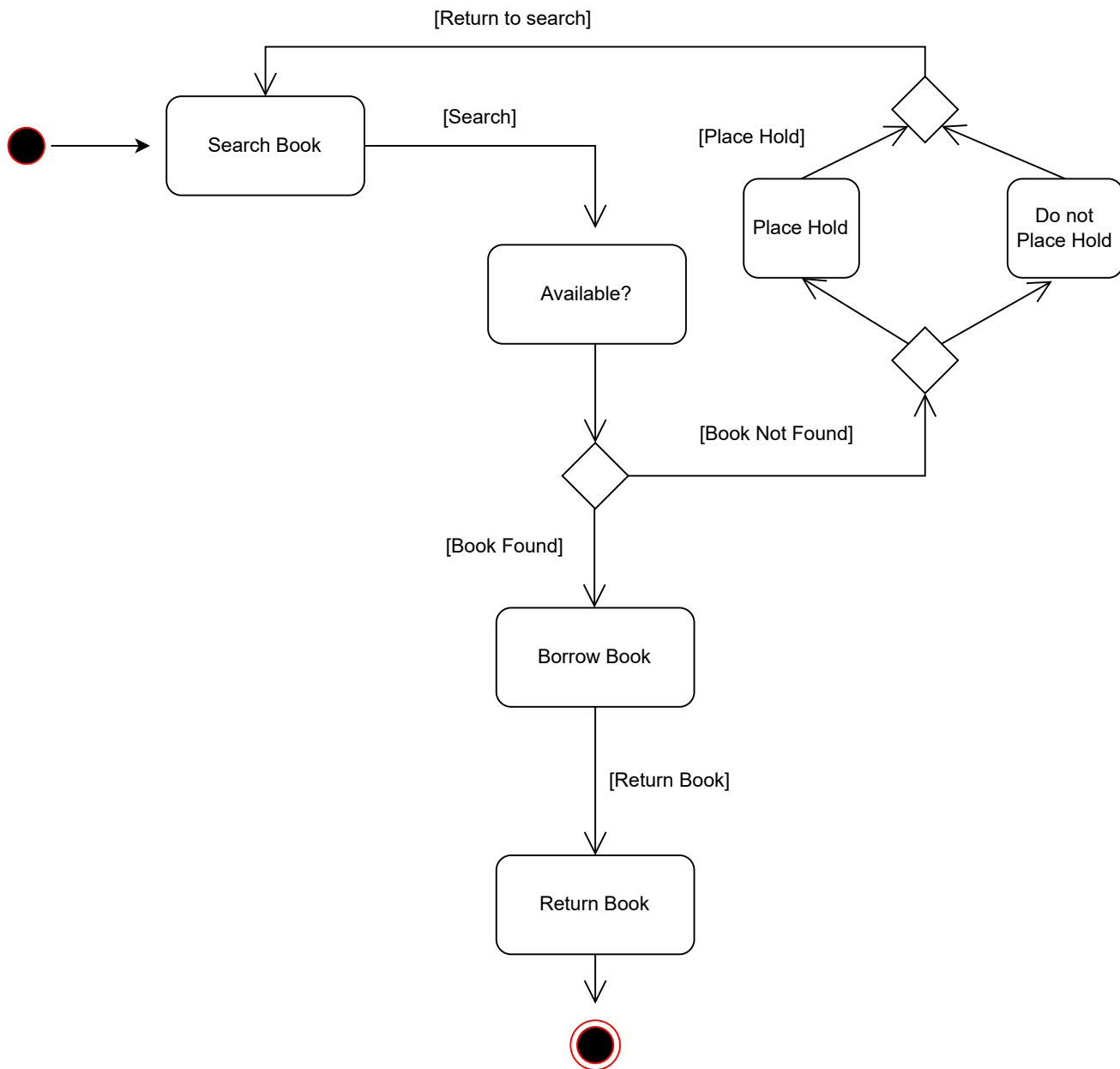
Q2: Identification of Classes and Class Diagrams: (5 points)
Identify the classes in the system and draw class diagrams including the attributes and methods for each class and the relationships between classes.

Member

MemberID: string

MemberName: String

ContactInfo: string

---

searchForBook()

placeHold()

borrowBook()

returnBook()

1

*

Book

ISBN: string

tittle: string

author: string

publicationYear: int

Availability: boolean

---

checkAvailability()

1..*

1..*

Use

Library

books: string

members: string

---

searchForBook()

searchForBook()

placeHold()

Q3: Activity Diagrams: (5 points)

Draw an activity diagram to demonstrate the process of borrowing and returning a book by a member.

[Return to search]

Search Book

[Search]

[Place Hold]

Place Hold

Do not Place Hold

Available?

[Book Not Found]

[Book Found]

Borrow Book

[Return Book]

Return Book

- **Q4: Sequence Diagrams: (5 points)**
- The scenario where a member **searches for a book and borrows it**
- The scenario where a member returns a book to the library
  Draw a sequence diagram including:

Book Search

Member

Library

SearchForBook

Book Available

Borrow Book

[Borrowed book time Frame]

Return Book