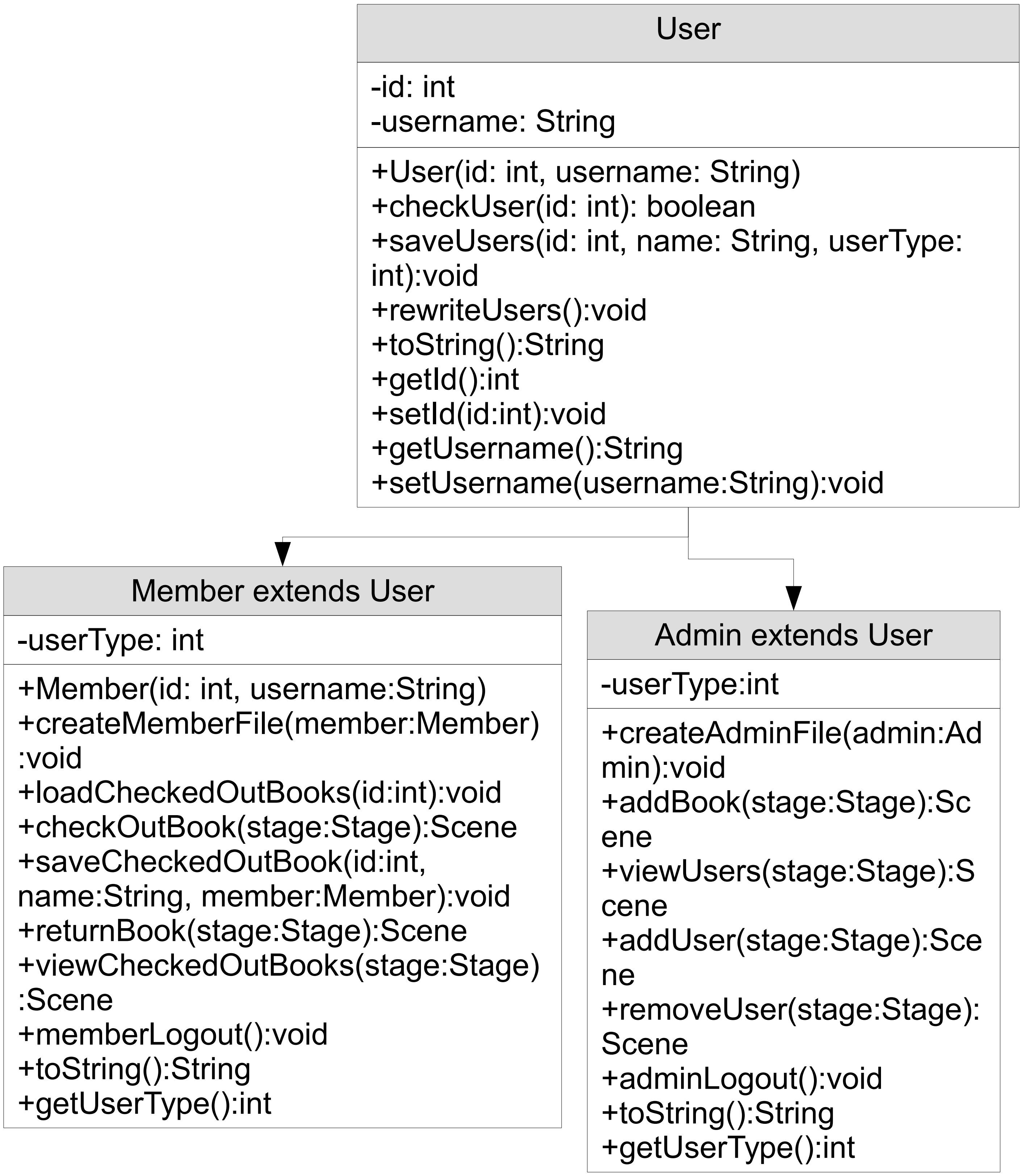
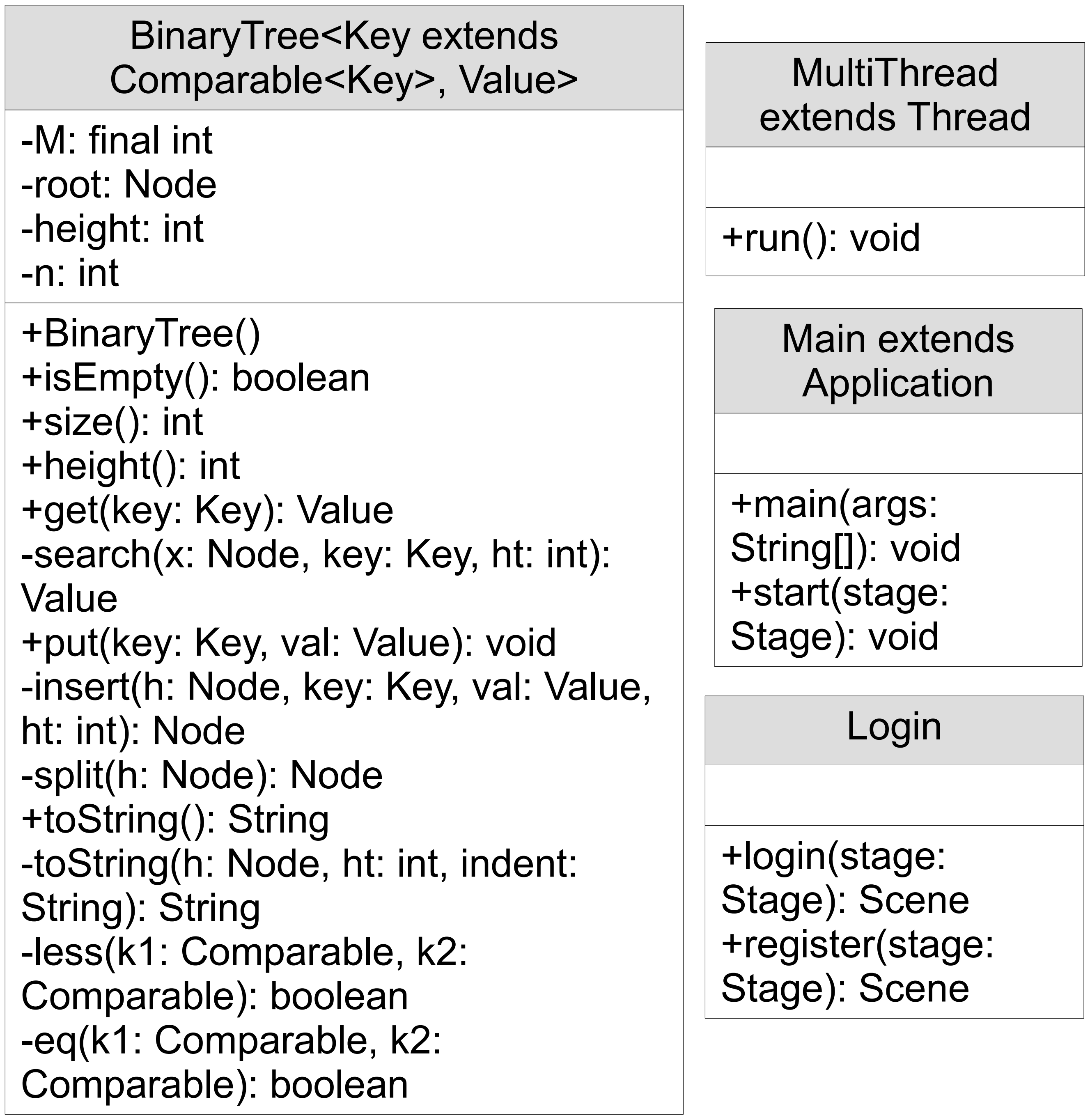
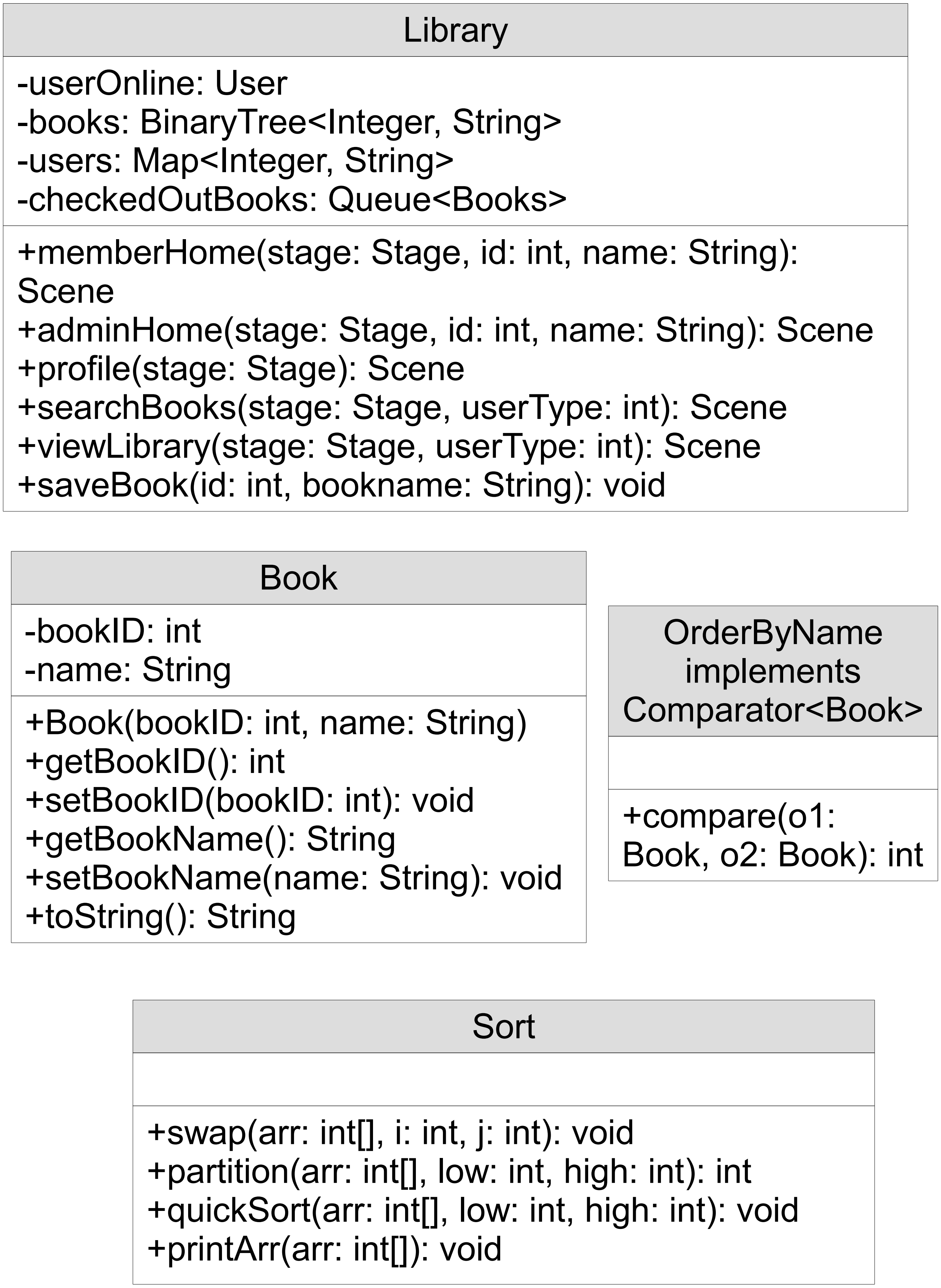

User
-id: int
-username: String
+User(id: int, username: String)
+checkUser(id: int): boolean
+saveUsers(id: int, name: String, userType: int):void
+rewriteUsers():void
+toString():String
+getId():int
+setId(id:int):void
+getUsername():String
+setUsername(username:String):void
Member extends User
-userType: int
+Member(id: int, username:String)
+createMemberFile(member:Member):void
+loadCheckedOutBooks(id:int):void
+checkOutBook(stage:Stage):Scene
+saveCheckedOutBook(id:int, name:String, member:Member):void
+returnBook(stage:Stage):Scene
+viewCheckedOutBooks(stage:Stage):Scene
+memberLogout():void
+toString():String
+getUserType():int
Admin extends User
-userType:int
+createAdminFile(admin:Admin):void
+addBook(stage:Stage):Scene
+viewUsers(stage:Stage):Scene
+addUser(stage:Stage):Scene
+removeUser(stage:Stage):Scene
+adminLogout():void
+toString():String
+getUserType():int


BinaryTree<Key extends Comparable<Key>, Value>
-M: final int
-root: Node
-height: int
-n: int
+BinaryTree()
+isEmpty(): boolean
+size(): int
+height(): int
+get(key: Key): Value
-search(x: Node, key: Key, ht: int): Value
+put(key: Key, val: Value): void
-insert(h: Node, key: Key, val: Value, ht: int): Node
-split(h: Node): Node
+toString(): String
-toString(h: Node, ht: int, indent: String): String
-less(k1: Comparable, k2: Comparable): boolean
-eq(k1: Comparable, k2: Comparable): boolean
MultiThread extends Thread
+run(): void
Main extends Application
+main(args: String[]): void
+start(stage: Stage): void
Login
+login(stage: Stage): Scene
+register(stage: Stage): Scene



Library

```
-userOnline: User
-books: BinaryTree<Integer, String>
-users: Map<Integer, String>
-checkedOutBooks: Queue<Books>
```

```
+memberHome(stage: Stage, id: int, name: String):
Scene
+adminHome(stage: Stage, id: int, name: String): Scene
+profile(stage: Stage): Scene
+searchBooks(stage: Stage, userType: int): Scene
+viewLibrary(stage: Stage, userType: int): Scene
+saveBook(id: int, bookname: String): void
```

Book

```
-bookID: int
-name: String
```

```
+Book(bookID: int, name: String)
+getBookID(): int
+setBookID(bookID: int): void
+getBookName(): String
+setBookName(name: String): void
+toString(): String
```

OrderByName implements Comparator<Book>

```
+compare(o1:
Book, o2: Book): int
```

Sort

```
+swap(arr: int[], i: int, j: int): void
+partition(arr: int[], low: int, high: int): int
+quickSort(arr: int[], low: int, high: int): void
+printArr(arr: int[]): void
```