**3.2 Subsystem Interfaces Specifications**

The system consists of mainly three interfaces: IUserInteraction, IScheduleManagement, and ICourseModifier. Each of those interfaces provides a set of methods that components can publicly access. The classes that implements those interfaces are the ones presented in the architecture diagram (see section 3.1), and the use of the method calls are explained in more detail in dynamic design scenario (see section 5).

**3.2.1 IUserInteraction**

The user interaction interface provides methods for students to perform actions related to their own schedule.

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| **Method** | |
| getAllSavedSchedules(studentID:long) list of Schedule objects | |
| **Class implementing this method** | **Specification** |
| UI | ***Description:***  Retrieves and returns all saved schedules of a student given its student ID.  ***Input parameter(s):***  studentID:long representing the student ID  ***Condition(s) for validity:***  studentID ≥ 0  ***Return type:***  list of Schedule objects |

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| **Method** | |
| getSavedSchedule(scheduleID:long) Schedule | |
| **Class implementing this method** | **Specification** |
| UI | ***Description:***  Given a schedule ID, retrieves and returns a specific saved schedule that represents the schedule of a semester.  ***Input parameter(s):***  scheduleID:long representing the schedule ID  ***Condition(s) for validity:***  scheduleID ≥ 0  ***Return type:***  Schedule |

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| **Method** | |
| saveSchedule(scheduleID:long) | |
| **Class implementing this method** | **Specification** |
| UI | ***Description:***  Saves a schedule given its ID to an account.  ***Input parameter(s):***  scheduleID:long representing the schedule ID  ***Conditions for validity:***  scheduleID ≥ 0  ***Return type:***  void |

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| **Method** | |
| searchCourse(courseID:long) list of Section objects | |
| **Class implementing this method** | **Specification** |
| UI | ***Description:***  Retrieves and returns information about a course, including the course’s sections, given the course ID.  ***Input parameter(s):***  courseID:long representing the course ID  ***Conditions for validity:***  courseID ≥ 0  ***Return type:***  list of Section objects |

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| **Method** | |
| selectWeek(date:int, month:int) Schedule | |
| **Class implementing this method** | **Specification** |
| UI | ***Description:***  Provides the caller with a weekly schedule view given the date and month as valid integer values for the targeted week.  ***Input parameter(s):***  date:int representing a date in the targeted week  month:int representing the month of the targeted week  ***Conditions for validity:***  1 ≤ date ≤ 31  1 ≤ month ≤ 12  ***Return type:***  Schedule |

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| **Method** | |
| viewAcademicRecord(studentID:long) AcademicRecord | |
| **Class implementing this method** | **Specification** |
| UI | ***Description:***  Allows to view the academic record of a student given the student’s ID.  ***Input parameter(s):***  studentID:long representing the ID of the student  ***Conditions for validity:***  studentID ≥ 0  ***Return type:***  AcademicRecord |

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| **Method** | |
| viewCourseInfo(courseID:long, sectionID:long) list of Section objects | |
| **Class implementing this method** | **Specification** |
| UI | ***Description:***  Retrieves and returns information about a course given the course ID and the section ID.  ***Input parameter(s):***  courseID:long representing the ID of the course  sectionID:long representing the ID of the section  ***Conditions for validity:***  courseID ≥ 0  sectionID ≥ 0  ***Return type:***  list of Section objects |

**3.2.2 IScheduleManagement**

The IScheduleManagement interface consists of a set of methods that provide another component the ability of create, modify and delete a schedule.

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| **Method** | |
| addCourse(courseID:long, sectionID:long) Schedule | |
| **Classes implementing this method** | **Specification** |
| UI,  Schedule | ***Description:***  Adds a course given the course ID and the section ID to a student’s schedule.  ***Input parameter(s):***  courseID:long representing the ID of the course  sectionID:long representing the ID of the section  ***Conditions for validity:***  courseID ≥ 0  sectionID ≥ 0  ***Return type:***  Schedule |

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| **Method** | |
| bookTimeSlot(startTime:int, endTime:int) | |
| **Class implementing this method** | **Specification** |
| Schedule | ***Description:***  Sets a time slot in the schedule to be occupied.  ***Input parameter(s):***  startTime:int representing the time at which the time slot starts  endTime:int representing the time at which the time slot ends  ***Conditions for validity:***  startTime ≥ 0  endTime > 0  endTime > startTime  ***Return type:***  void |

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| **Method** | |
| deleteSchedule(scheduleID:long) | |
| **Class implementing this method** | **Specification** |
| Schedule | ***Description:***  Deletes a schedule given its schedule ID.  ***Input parameter(s):***  scheduleID:long representing the ID of the schedule to be deleted  ***Conditions for validity:***  scheduleID ≥ 0  ***Return type:***  void |

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| **Method** | |
| freeCredits(studentID:long) int | |
| **Class implementing this method** | **Specification** |
| Schedule | ***Description:***  Returns the number of free credits a student is still allowed to take.  ***Input parameter(s):***  studentID:long representing the ID of the student  ***Conditions for validity:***  studentID ≥ 0  ***Return type:***  int |

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| **Method** | |
| freeTimeBlock(startTime:int, endTime:int) | |
| **Class implementing this method** | **Specification** |
| Schedule | ***Description:***  Frees a time block of a schedule given the start and end time of the block.  ***Input parameter(s):***  startTime:int representing the time at which the time block starts  endTime:int representing the time at which the time block ends  ***Conditions for validity:***  startTime ≥ 0  endTime > 0  endTime > startTime  ***Return type:***  void |

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| **Method** | |
| generateWeeklyView(startDate:String, endDate:String) Schedule | |
| **Class implementing this method** | **Specification** |
| Schedule | ***Description:***  Generates a weekly view of a schedule given the start date and end date  ***Input parameter(s):***  startDate:String representing the date at which the week starts (YYMMDD)  endDate:String representing the date at which the week ends (YYMMDD)  ***Conditions for validity:***  length of startDate = 6  length of endDate = 6  startDate and endDate contains only characters between ‘0’ and ‘9’  ***Return type:***  Schedule |

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| **Method** | |
| isTimeSlotFree(startTime:int, endTime:int) boolean | |
| **Class implementing this method** | **Specification** |
| Schedule | ***Description:***  Verifies whether a time slot if available in a schedule given the starting and ending time to be checked.  ***Input parameter(s):***  startTime:int representing the time at which the time slot starts  endTime:int representing the time at which the time slot ends  ***Conditions for validity:***  startTime ≥ 0  endTime > 0  endTime > startTime  ***Return type:***  Schedule |

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| **Method** | |
| removeCourse(courseID:long, sectionID:long, studentID:long) Schedule | |
| **Class implementing this method** | **Specification** |
| UI,  Schedule | ***Description:***  Removes a given course section from the schedule of a student.  ***Input parameter(s):***  courseID:long representing the ID of the course to be removed  sectionID:long representing the ID of the section to be removed  studentID:long representing the ID of the student  ***Conditions for validity:***  courseID ≥ 0  sectionID ≥ 0  studentID ≥ 0  ***Return type:***  Schedule |

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| **Method** | |
| saveToAccount(scheduleID:long) list of Schedule objects | |
| **Class implementing this method** | **Specification** |
| Schedule | ***Description:***  Saves a schedule given its ID to an account and returns an updated list of the saved schedules.  ***Input parameter(s):***  scheduleID:long representing the ID of the schedule to be saved  ***Conditions for validity:***  scheduleID ≥ 0  ***Return type:***  list of Schedule objects |

**3.2.3 ICourseModifier**