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| Activity | System Definition |
| Purpose | A concise description of the software to be developed with its purpose, functions and its classes of users. |
| Artifact #1 | Domain Model |
| Description | The principal entities and their relationships. Not including any methods. |
| Work hour per person | 4 |
| Due date | January 9th -January 11th 2016 |
| Participants |  |

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| Activity | Team Assignments |
| Purpose | Assigning roles to the team in terms of their preferences and strength/weaknesses and electing a team leader |
| Artifact #1 | Team members list |
| Description | List with the name and role of each team member |
| Work hour per person | 1 |
| Due date | January 8th 2016 |
| Participants |  |

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| Activity | Defining Requirements |
| Purpose | To describe the functionality of the system in terms of processing each user actions. Defining the main functions of The Scheduler that take place when generating an output |
| Artifact #1 | Use Case Diagram |
| Description | A diagram explaining the interactions between the actors and functions of the system and showing the relationship between the use cases. |
| Work hour per person | 10 |
| Artifact #2 | Use Cases |
| Description | A complete list of all the use cases included in the system. |
| Work hour per person | 12 |
| Artifact #3 | Domain Model |
| Description | Updated domain model containing the attributes and associations between each class objects. |
| Work hour per person | 4 |
| Due date | January 22th February 7th 2016 |
| Participants |  |

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| Activity | Architecture |
| Purpose | A preliminary description of the high-level structure showing the early of the proposed solution and the reasons leading up to this design. |
| Artifact #1 | Non-Functional Requirements |
| Description | The constraints the system will undoubtedly meet throughout its development. |
| Work hour per person | 10 |
| Due date | January 29th-February 7th 2016 |
| Participants |  |

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| Activity | Resources |
| Purpose | Evaluating the experience and knowledge each team member can bring to the project. Presenting the list of the available technologies for the project. |
| Artifact #1 | Technologies used |
| Description | A list of the different hardware, software or any other tool that could be used for the system’s development. |
| Work hour per person | 2 |
| Due date | February 6th-February 7th 2016 |
| Participants |  |

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| Activity | Planning |
| Purpose | Describing every activity and documentation to be completed throughout the development of the system |
| Artifact #1 | Estimation |
| Description | A time and cost estimation for the completion of the project |
| Work hour per person | 2 |
| Artifact #2 | Schedule |
| Description | A diagram showcasing the timetable for each main phases. (Gantt Chart) |
| Work hour per person | 2 |
| Artifact #3 | Risks |
| Description | A list of the various risks that could encountered during the development of the system |
| Work hour per person | 3 |
| Due date | February 4th-February 8th |
| Participants |  |

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| Activity | Prototyping |
| Purpose | An early version of the system proving that the technologies used are proper for the project |
| Artifact #1 | Working framework |
| Description | An initial design of the system that describes its main functions. |
| Work hour per person | 10 |
| Artifact #2 | Server Connection |
| Description | An initial call to the servers implemented in the prototype demonstrating the information storage |
| Work hour per person | 15 |
| Due date | February 6th February 9th 2016 |
| Participants |  |

Deliverable 2: March 9th

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| Activity | Detailed Architecture |
| Purpose | Overall structure of the system |
| Artifact #1 | 4+1 Architectural View |
| Description | High-level structure of the system, composed of 5 views: logical view, process view, development view, physical view and scenarios. Used to describe a large system into multiple subsystems. |
| Work hour per person | 10 |
| Artifact #2 | Subsystems Interface Specifications/Module Interface Specifications |
| Description | Description of each subsystems meant to complete specific services, and their parameters (invalid/valid values) passed in functions. |
| Work hour per person | 25 |
| Due date |  |
| Participants | Emili, |

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| Activity | Detailed Design |
| Purpose | Complete class description of each subsystem |
| Artifact #1 | UML Class Diagram |
| Description | Connection between classes of each subsystems |
| Work hour per person | 12 |
| Artifact #2 | Dynamic Design Scenarios |
| Description | 2 dynamic design of 2 uses cases (using at least 3 system operations). This includes system sequence, operational contracts, and sequence diagrams. |
| Work hour per person | 6 |
| Artifact #3 | Estimation |
| Description | Estimated cost for integration, testing and documentation for each module. |
| Work hour per person | 7 |
| Due date |  |
| Participants | Adil, |

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| Activity | Rapid Prototyping |
| Purpose | Programming of the prototype designed using the architecture and design description. |
| Artifact #1 | Rapid Prototyping report |
| Description | Listing and commenting on classes/modules/drivers used for the rapid prototype. |
| Work hour per person | 22 |
| Artifact #1 | Testing |
| Description | Testing code and report of the rapid prototype |
| Work hour per person | 15 |
| Artifact #3 | Risks |
| Description | Update of the risks, cost estimate and scoping from the deliverable 1 to deliverable 2 |
| Work hour per person | 4 |
| Due date |  |
| Participants | Alex, |

Deliverable 3: April 6th

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| Activity | Final prototype |
| Purpose | Final prototype of the a fully working software |
| Artifact #1 | Test report and instructions manuals |
| Description | 1. Test report on the entire making of the system  2. Instruction manual for future users |
| Work hour per person | 60 |
| Due date |  |
| Participants | Sean, Gabriele, Adriel, Le Vinh, Bruce, Dias |

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| Activity | Testing Report |
| Purpose | Final report on all testing done on the final product |
| Artifact #1 | Test coverage |
| Description | 1. Listing of all tested items, and why.  2. Identification of 5 classes/methods and why they were tested. |
| Work hour per person | 20 |
| Artifact #2 | Test cases |
| Description | 1. Two mid-level units tests, with their respective test cases and descriptions.  2. Requirements testing and their test cases  3. Test cases of potential extreme system usages, and their respective description  4. Test testing regarding the security of the system |
| Work hour per person | 15 |
| Due date |  |
| Participants |  |

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| Activity | System delivery |
| Purpose | Instructions on the system |
| Artifact #1 | Installation Manual |
| Description | Step by step instructions on how to install the system. |
| Work hour per person | 6 |
| Artifact #2 | Users Manual |
| Description | Step by step instructions on how to use the system. |
| Work hour per person | 6 |
| Due date |  |
| Participants |  |

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| Activity | Final cost estimate |
| Purpose | Final coverage on the total amount of hours and money spent on the project |
| Artifact #1 | Working hours |
| Description | Final coverage on the number of hours put into the project by each person. |
| Work hour per person | 10 |
| Artifact #1 | Cost |
| Description | Final coverage on the costs spend on each individuals work and for technological resources |
| Work hour per person | 4 |
| Due date |  |
| Participants |  |

April 13th

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| Activity | Finalization of the deliverable |
| Purpose | Completion of the project by submitting a complete and corrected report. |
| Artifact #1 | Final report |
| Description | Assembling and correction over the report and its content. |
| Work hour per person | 50 |
| Due date |  |
| Participants |  |

**Estimated Total Hours: 352**

**Basis for estimates**

The basis for each artifact estimation came from analyzing the deliverables to be completed for the project. By breaking down all the sections, evaluating the difficulty of each tasks and considering the number of participants, the approximate working hours were calculated and added. The estimation will be revised later into the project, if an important problem arises, which could delay the whole working process.

Assuming that the software engineers involved in the development are paid at an average rate of $25/hour.

**Estimated Cost for the full project. At an hourly rate of $25/hour.**

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| Hardware |  |
| Computers, Servers: | $0 |
| Software: |  |
| Software/Technologies used: | $0 |
| Software development/Documentation | $8800 |
| Total: | $8800 |

**Risks**

1) Knowledge of frameworks.

The laravel framework for PHP and React.js for javascript represent a risk, since only a few members of the team are familiar with their use and their learning curve could play in some scheduling issues. In others works, developing the system could longer than anticipated.

2) Time

A single semester may not be enough to complete the whole system. Some key features may be left due to the final deadlines, which would hinder the usability of the Scheduler.