CSE343 – SOFTWARE ENGINEERING

PROJECT REPORT: USER STORIES AND SCENARIOS

WAREHOUSE RAMP TRACKING SYSTEM

TEAM: GRUP FATİH

Project Owner:	İbrahim Hilmi AKARGÜL	1801042660
Project Manager:	Öner ERCAN	1801042101
Developer:	Halis AKBAL	171044080
Developer:	Ersin ALÇİN	1801042692
Developer:	Eray ALÇİN	1801042687

Introduction

Same as other days, Halis was going to his part time job after school. He is working at a warehouse. He loads goods into vehicles which come to the ramps but he really gets frustrated when he is working. Warehouse staff argue with each other all the time because of issues like “Its is not that vehicle’s turn”, “There is no parking area for the vehicles”, “What are we supposed to load to the vehicle?” etc. So Halis thinks there must be a solution for this problem.

The main reason for these kind of problems is that the warehouse system for managing the workflow is still done on papers and not efficient at all. Employees are still using pen and paper for the most of their work. Luckily, Halis is a CS student and at his current year of study, his professor wants him and his team to make a real software project for the industry. So he and his team mates decides to solve this warehouse problem by building a web application.

The application is used by launching the web site. The employees has to login to the site so that the system can identify their roles (admin, security, dispatcher, ramp staff) in the warehouse and display an interface with respect to their job which would be actions like listing vehicles, assigning vehicles to ramps, registering new vehicles to the system and so on…

User Stories and Scenarios

Story 1

Story 1	
ID	ST01
Title	Tracking Shipments that are Associated with the Warehouse
Story	Öner is a dispatcher in a warehouse. He talks to companies, arranges future shipments and records the details of these shipments like the waybill, the vehicle information, the driver information etc. The records are normally held on paper which makes the process tedious and hard to track when there are so many shipments waiting to be received. But using the new WRTS web application, he can register the shipments on the system, view or change the awaiting shipment information and look at the finished shipments. He can do these things much faster than before since he can just write a piece of information on the search bar and find the shipments related to that information.

Story 1 Scenarios

Story 1 – Scenario 1	
ID	ST01_SC01
Title	Registering New Shipments to the System
Scenario	**Initial Assumption:** The dispatcher is logged on to the system. The dispatcher has already agreed with a company for a shipment. **Normal Flow:** The dispatcher chooses the shipment operations on the operations panel. At the top of the new page above the shipment list, there is a button to register new shipments. The dispatcher clicks on the button and the application displays a registration form. The dispatcher then fills the form with the shipment information which he/she has gathered and clicks on the register button. The system adds the record to the database. **What Can Go Wrong:** The dispatcher can add a new shipment with a vehicle which has already been registered in another shipment. The system has to prevent the same vehicles to be registered. Instead the vehicle information on the shipment record has to refer to the already existing vehicle information. The dispatcher might forget to fill some of the fields on the registration form or can enter a waybill which already exists. The system must inform the dispatcher about these errors and request the dispatcher to fill the form again. **Other Activities:** Other users who also can see the shipment list might view the shipment list as new shipments are being registered. **System State on Completion:** The dispatcher is logged on. The system records the shipment information on the database and returns the dispatcher to the shipments operations page. The new shipment can be seen in the shipment list.

Story 1 – Scenario 2	
ID	ST01_SC02
Title	Searching, Viewing and Changing the Shipments
Scenario	**Initial Assumption:** The dispatcher is logged on to the system. The dispatcher has already registered a shipment to the system. **Normal Flow:** The dispatcher chooses the shipment operations on the operations panel. The system brings up a page which shows all of the shipments as a list. Awaiting shipments are shown first in the list and the finished shipments are shown last. If the dispatcher desire, he/she can search for specific vehicles by typing the related information in the search bar which is located at the top right corner of the shipment list. By clicking the edit button at the right side of the desired shipment, the dispatcher gets to a form where he/she can change the shipment information. After filling the form, the dispatcher clicks on the change button and the system changes the shipment data in the database. **What Can Go Wrong:** The dispatcher can change a vehicle's information to an already existing vehicle's. If the old vehicle information is not part of any other shipment, the system has to remove the information of the old vehicle from the database. And also the new vehicle information has to refer to the existing vehicle information. The system must prevent the data to be deleted if the dispatcher doesn't fill some of the fields in the edit form. **Other Activities:** Other users who also can see the shipment list might view or edit the shipment list as the dispatcher is editing the shipment. **System State on Completion:** The dispatcher is logged on. The system changes the shipment information on the database and returns the dispatcher to the shipments operations page. The new data of the edited shipment can be seen on the shipment list.

Story 2

Story 2	
ID	ST02
Title	Organizing the Ramps and the Ramp Staff
Story	Öner is a dispatcher in a warehouse. He is responsible of the ramps and the ramp staff in the warehouse. Normally without any application, he has to manage the ramps and the ramp staff all by himself. He needs to track who does what and what ramps can be used or not. He also needs to track which vehicles are going to which ramp. But as you can imagine, it is hard to do it like this and there can be a lot of confusion about how the things go without any digital system. So Öner decides to use the WRTS web application. In the application, Öner can see everything about the ramps, the vehicles in those ramps and the staff designated for those ramps. For the day he wants to reassign some ramps to other ramp staff since one of the employees didn't come to the work. And also there is an unusable ramp which needs to get fixed so it cannot be used until then. So Öner gets to work and launches WRTS. He logs in to the system and opens the ramp operations page. First he wants to disable the faulty ramps. In the page he sees a list which shows all of the ramps. For each working ramp, there is an option to disable. Öner chooses the option and the ramp gets disabled and it becomes unusable for ramp staff. After that, he reassigns the ramps which were assigned to the ill employee. At the same page which the ramp list is displayed, for each ramp there is an option to assign employees. So he chooses the ramp staff that he wants.

Story 2 Scenarios

Story 2 – Scenario 1	
ID	ST02_SC01
Title	Disabling the Ramps
Scenario	**Initial Assumption:** The dispatcher is logged on to the system. The ramp list is already populated by the admin. There is a faulty ramp in the warehouse. **Normal Flow:** The dispatcher chooses the ramp operations on the operations panel. At the ramp operations page, the dispatcher can see the ramp list. Next to each available ramp in the list, there is a disable button. The dispatcher clicks on the button. The status of the ramp changes to “Maintenance” and the ramp becomes unusable. **What Can Go Wrong:** The dispatcher can choose the disable button while a vehicle is already in the ramp and is getting processed. The system must not allow the disable button to be pressed in that situation. The dispatcher should only be allowed to press the disable button when there are no vehicles in the ramp. **Other Activities:** The dispatcher can revert the ramp status back to available using the same process that he used to disable the ramp. **System State on Completion:** The dispatcher is still logged on. The ramp status is changed to “Maintenance” (or “Available” if its fixed and getting reverted back to normal). The database is updated accordingly. The dispatcher is returned back to the ramp operations page.

Story 2 – Scenario 2	
ID	ST02_SC02
Title	Assigning Ramp Staff to Ramps
Scenario	**Initial Assumption:** The dispatcher is logged on to the system. The ramp list is already populated by the admin. There is at least one ramp staff account created by the admin. **Normal Flow:** The dispatcher chooses the ramp operations on the operations panel. At the ramp operations page, the dispatcher can see the ramp list. Next to each available ramp in the list, there is an "Assign Ramp Staff" button. The dispatcher clicks on the button. The dispatcher gets presented with a list of ramp staff that he/she can choose from. The dispatcher chooses a personnel and clicks the assign button. The system assigns the ramp staff to the ramp. **What Can Go Wrong:** The dispatcher might choose the wrong person that he/she didn't intend to. The dispatcher can assign the correct employee by doing the same normal flow. **Other Activities:** An active employee who is assigned to one of the ramps might get removed from the system by the admin. In that case, the system also should correctly delete the ramp staff from the ramp list. **System State on Completion:** The dispatcher is logged on. The new ramp staff is assigned to the ramp. The database is updated accordingly. The dispatcher is returned back to the ramp operations page.

Story 3

Story 3	
ID	ST03
Title	Processing the Shipments
Story	Eray is a ramp staff in the warehouse. For the day he is waiting for a particular shipment in his ramp. Finally the vehicle arrives to the warehouse and it goes to the parking lot. Eray uses the WRTS system to track the vehicles that are in the parking lot and sees that the vehicle has arrived. Using the parking spot list, he sends a notification to the driver of that vehicle. The driver sees the notification and comes to Eray's ramp. Eray assigns the vehicle to the ramp by choosing it on the ramp list. The vehicle then gets processed in the ramp. In the meantime, users who can see the shipment list can see what step the vehicle is in like if its loading the goods or ready to leave the ramp and so on. When the vehicle is done with the shipment in the ramp, its status gets changed to ready to leave. When the driver of the vehicle is there and is in a position to leave the ramp, Eray removes the vehicle from the ramp on the ramp list. And the shipment is considered to be processed.

Story 3 Scenarios

Story 3 – Scenario 1	
ID	ST03_SC01
Title	Sending Notification to the Drivers Waiting in the Parking Lot
Scenario	**Initial Assumption:** The ramp staff is logged on to the system. There is at least one ramp staff account created by the admin. The ramp list is already populated by the admin. The admin assigned the ramp staff to at least one of the ramps. And there is at least one parking lot with at least one parking spot. There is at least one vehicle waiting in the parking lot. **Normal Flow:** The ramp staff chooses the parking lot operations from the operations panel. The ramp staff is presented with a parking spot list showing all of the parking spots containing a vehicle on the system. At the right side of the vehicles, there is a send notification button. The ramp staff clicks the send notification button to his/her desired vehicle and a notification is sent to the driver. The the driver sees the notification which includes the ramp information and goes to the corresponding ramp. **What Can Go Wrong:** The driver might not come to the ramp if he/she doesn't see the notification. In that case, the ramp staff should be able to send a notification to the security so that the security can check what is going on with the vehicle and the driver. **Other Activities:** There might be new vehicles coming the parking lot which the current ramp staff needs to call to his/her ramps as well. **System State on Completion:** The ramp staff is logged on. The vehicle gets assigned to the ramp, the ramp gets to its unavailable state. The vehicle is removed from the parking spot that it was occupying and the corresponding shipment gets to its next state. The database is updated accordingly. The ramp staff is returned back to the ramp operations page.

Story 3 – Scenario 2	
ID	ST03_SC02
Title	Processing the Shipment in the Ramp
Scenario	**Initial Assumption:** The ramp staff is logged on to the system. There is at least one ramp staff account created by the admin. The ramp list is already populated by the admin. The admin assigned the ramp staff to at least one of the ramps. A vehicle is called to the ramp and the vehicle came next to the ramp. **Normal Flow:** The ramp staff chooses the ramp operations from the operations panel and sees the ramps that he/she is assigned to as a list. Next to every ramp in the list, there is an assign shipment button. He clicks on the button and enters the waybill of the shipment with the current vehicle. The assigned vehicle gets in the ramp and the shipment process starts. The shipment has states which shows what is currently going on with the shipment. Next to every ramp there is a button called next state which changes the vehicle's status to the next state. After each state, the ramp staff presses that button. When the shipment is done and the state of the shipment is ready to leave, the ramp staff removes the vehicle from the ramp and the ramp becomes available. The shipment gets to its next state which is "Left Ramp". **What Can Go Wrong:** The shipment might fail for some reason. The ramp staff can remove the shipment from the ramp and the shipment's state gets to "Left Ramp" regardless of its current state. **Other Activities:** The dispatcher might want to disable the ramp. **System State on Completion:** The ramp staff is logged on. The ramp becomes available again. The state of the shipment becomes "Left Ramp". The database is updated accordingly. The ramp staff is returned back to the ramp operations page.

Story 3 – Scenario 3	
ID	ST03_SC03
Title	Sending notification to the Security
Scenario	**Initial Assumption:** The ramp staff is logged on to the system. There is at least one ramp staff account created by the admin. The ramp list is already populated by the admin. The admin assigned the ramp staff to at least one of the ramps. A vehicle is called to the ramp but the vehicle didn't come. **Normal Flow:** The ramp staff chooses the parking lot operations. He/She is presented with the parking spot list which only shows the occupied spots. Next to every spot there is a notify security button. The ramp staff presses the button and a notification message gets sent to the security. **What Can Go Wrong:** The vehicle might not come even if the security is notified. At that point, the ramp staff should move on to the next shipment and deal with the current shipment later. **Other Activities:** The ramp staff might already be checking the parking lot for some other ramp staff's notification. **System State on Completion:** The ramp staff is logged on. A message is sent to the security. The ramp staff is still on the parking spots page.

Story 4

Story 4	
ID	ST04
Title	Accepting and Letting the Vehicles in to the Warehouse
Story	Hilmi is a security in a warehouse. Same as always, he is waiting at his post. While waiting, a vehicle arrives to the gate. Hilmi asks the driver for his/her waybill and checks the plate number. He launches the WRTS application and logs in to the system. In the application, he can see the awaiting shipments. He searches for the vehicle's waybill and the its plate as well to make sure that its the correct vehicle. He finds out that the information is correct and lets the vehicle in. Now he has to send the vehicle to the parking lot. So, in the application, he chooses a parking lot which suits the type of the vehicle. The application displays the parking spots which belong to the chosen parking lot. Hilmi then chooses an available parking spot and assigns the current vehicle to that parking spot.

Story 4 Scenarios

Story 4 – Scenario 1	
ID	ST04_SC01
Title	Accepting a Vehicle to the Warehouse
Scenario	**Initial Assumption:** The security is logged on to the system. There is at least one parking lot with at least one parking spot. There is a vehicle waiting at the gate of the warehouse. **Normal Flow:** The security chooses the shipment operations tab. The system displays a list which contains the current awaiting shipments. The security takes the waybill code from the driver. Using the search bar above the shipment list, he/she searches for the waybill code that the driver provided. The security finds out that the shipment exists in the list. He/she accepts the vehicle in. **What Can Go Wrong:** The waybill number might be wrong. In that case the security has to ask the driver again for the waybill since the driver might have spelled the waybill wrong. Even after correcting the spelling, if the waybill is not found on the system, the security does not let the vehicle in. **Other Activities:** Some other vehicles might arrive to enter the warehouse. **System State on Completion:** The security is logged on. The vehicle gets into the warehouse.

Story 4 – Scenario 2	
ID	ST04_SC02
Title	Sending a Vehicle to the Parking Lot
Scenario	**Initial Assumption:** The security is logged on to the system. There is at least one parking lot with at least one parking spot. There is a vehicle accepted into the warehouse. **Normal Flow:** The security chooses the parking lot operations tab. The system displays the parking lots that are on the system. The security chooses a parking lot which suits the type of the vehicle. The system shows the list of the parking spots which belong to the chosen parking lot. There is an “Assign Vehicle” button next to each available parking spot. The security chooses one of the parking spots and enters the waybill code of the vehicle. Then the vehicle goes to its parking spot. **What Can Go Wrong:** There might not be any available spots for the vehicle. At that point, the vehicle needs to stay outside and should be called back in once there is a parking spot available. **Other Activities:** Some other vehicles might be waiting for a parking spot. **System State on Completion:** The security is logged on. The vehicle is in the parking lot. The vehicle is assigned to the parking spot on the system and the parking spot is unavailable. The state of the shipment related to the vehicle is changed accordingly. The database is updated with the current information. The security is on the parking lot page.

Story 5

Story 5	
ID	ST05
Title	Managing Users and the System
Story	Ersin works in a warehouse where he is the admin of the WRTS application. The warehouse hires a new ramp staff on that day. The employee must be registered to the system so that he/she can do his/her job. So the new employee comes to Ersin and asks him to register him/her. Ersin logs in to the system. He gets to the user list and adds the new employee by filling out a registration form. After that, Ersin gives the generated password to the employee which he/she can change it from user profile. And the employee can start to use the system and do his/her job. After he's done with the employee, the manager comes in. The ramp count in the warehouse was getting increased so he/she requests the admin to increase the count in the application as well. The admin adds new ramps to the ramp list as the manager asked. And also the manager asks the admin to add a new parking lot to the system as well since the construction of the new truck parking lot was over. The admin opens the parking lot list where the individual parking lots can be chosen. From there he adds a new truck parking lot to the system. He also adds the new parking spots to the new parking lot. And the day was done for the admin.

Story 5 Scenarios

Story 5 – Scenario 1	
ID	ST05_SC01
Title	Adding New Users to the System
Scenario	**Initial Assumption:** The admin is logged on to the system. **Normal Flow:** The admin opens the User Operations page from the operations tab. He/She is presented with a user list and some buttons. The admin chooses the “Add User” button at the top of the user list. He/She is asked to fill out the user registration form. There the admin enters the user information and chooses the department of the user. And then hits the create button and the user is added to the system. **What Can Go Wrong:** The admin might enter invalid email or leave some ares empty. In that case, the system should inform the admin about the error ask the admin to fill the form again. **Other Activities:** There might be other admins who are adding a new user at the same time. **System State on Completion:** The new user is added to the system. The admin is returned back to the user operations page.

Story 5 – Scenario 2	
ID	ST05_SC02
Title	Adding a New Ramp to the System
Scenario	**Initial Assumption:** The admin is logged on to the system. **Normal Flow:** The admin opens the Ramp Operations page from the operations tab. He/She is presented with a ramp list. The admin chooses the “Add Ramp” button at the top of the ramp list. He/She is asked to fill out the ramp creation form. The admin enters the ramp name and chooses the create button and the ramp is added to the system. **What Can Go Wrong:** The admin might forget to enter the ramp name. The system should inform the admin about the error ask the admin to fill the form again. **Other Activities:** There might be other admins who are adding new ramps at the same time. **System State on Completion:** The new ramp is added to the system. The admin is returned back to the ramp operations page.

Story 5 – Scenario 3	
ID	ST05_SC03
Title	Adding New Parking Lots and New Parking Spots
Scenario	**Initial Assumption:** The admin is logged on to the system. **Normal Flow:** The admin opens the Parking Lot Operations page from the operations tab. The system shows the parking lot page where the parking lots are presented as clickable cards. At the beginning of those cards there is an “Add Parking Lot” button. The admin clicks on the button and gets to the parking lot creation form. The form asks him to enter a parking lot name (optional) and choose the vehicle type that is going to be accepted to the parking lot. The admin choose the create button and the parking lot is added to the system. From the parking lot operations page, the admin chooses the new parking lot and gets into a page where the parking spots of that parking lot is listed. At the top of the parking lot list, there is an “Add Parking Spot” button where the admin can just press and create a new parking spot for the parking lot. **What Can Go Wrong:** The admin might forget to choose the vehicle type of the parking lot. The system should display an error and asks the admin to fill the form again. **Other Activities:** There might be other admins who are adding new parking lots or parking spots at the same time. **System State on Completion:** The admin is still logged on. The parking lot and the parking spots are added to the system. The database is updated accordingly. The admin is redirected to the parking lot operations page after adding a parking lot or to the parking lot’s own page where the parking spots are shown.