Baranova-Cyprian-Styk

Baranova Cyprian Styk

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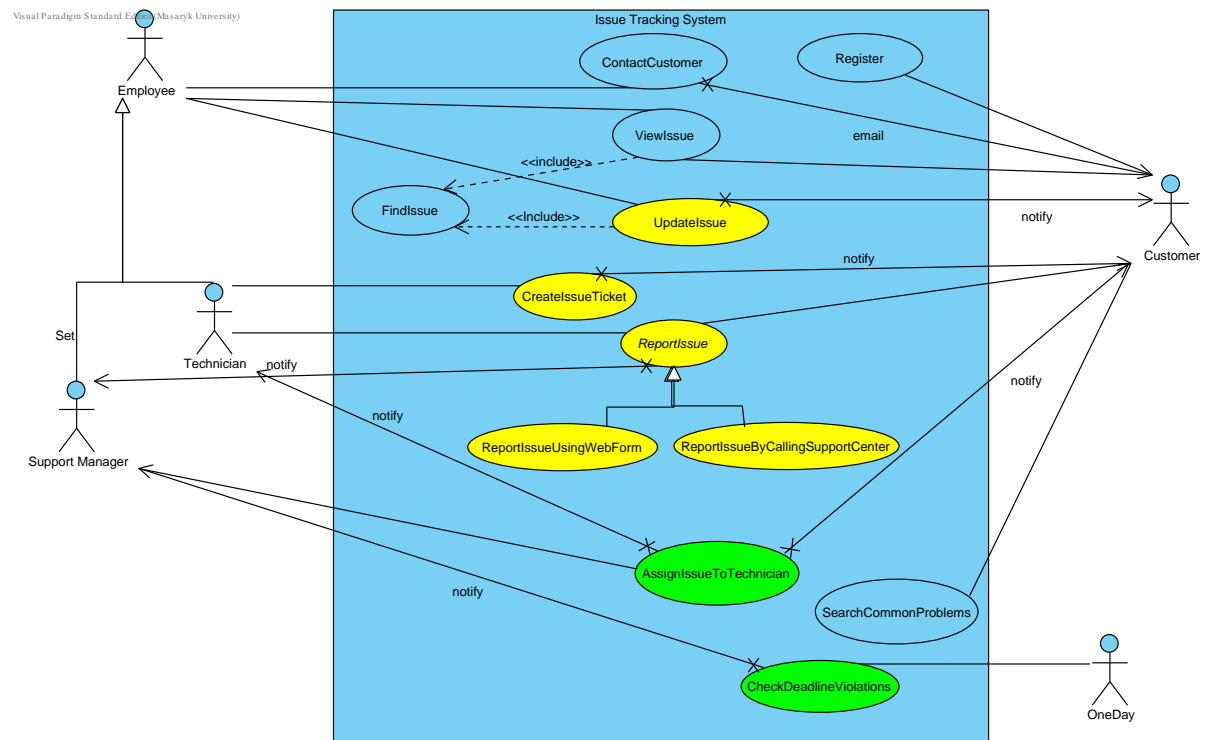# Table of Figures

Use Case Diagram1

Visual Paradigm Standard Edition(Masaryk University)

Issue Tracking System

Employee · ContactCustomer · Register · ViewIssue · email · FindIssue · <<include>> · <<Include>> · UpdateIssue · notify · Customer · CreateIssueTicket · notify · ReportIssue · Technician · notify · Set · notify · ReportIssueUsingWebForm · ReportIssueByCallingSupportCenter · notify · Support Manager · AssignIssueToTechnician · SearchCommonProblems · notify · CheckDeadlineViolations · OneDay

Summary

Name	Description
♀ Support Manager	
♀ Employee	
♀ Technician	
♀ OneDay	
♀ Customer	
⬭ ReportIssueUsingWebForm	
⬭ ReportIssueByCallingSupportCenter	
⇐E Set	
⬭ CreateIssueTicket	Technician can create a new issue ticket after the reported issue is verified and enough info is known about the issue.
⬭ ContactCustomer	Employee can contact customer when more information about issue is needed.
⬭ AssignIssueToTechnician	Support manager can assign reported issue to a specific technician. Once an issue is assigned, both customer and technician get notified.

🔵 UpdateIssue	Employee can update status of issue and add more information about issue. Customer will be notified when the issue is updated.
🔵 FindIssue	Each issue has unique number by which it can be easily looked up. This action is necessary for viewing and updating issues.
🔵 SearchCommonProblems	Customer can browse the knowledge base where common problems are listed.
🔵 Register	Customer can register in the system. Customer will be automatically logged into the system.
🔵 ViewIssue	All system users can view information and status of issues.
🔵 CheckDeadlineViolations	Deadline violations of high/medium priority issues are checked every midnight. Support manager is notified of any violation.
🔵 ReportIssue	Technician and customer can report an issue. Customer can use web form to report issue or can contact support manager.
📄 Issue Tracking System	

Description

Functional requirements

Customer
- report issue
- view issue
- search common problems
- register

Support manager
- view issue
- update issue
- assign issue to technician
- contact customer

Technician
- view issue
- update issue

- create issue ticket
- contact customer
- report issue

Time
- check deadline violations

Non-functional requirements

1. Online issue reporting is accessible 24/7.
2. The call centre is available 9-17 CET +1 Mon-Fri.
3. System is able to handle 1000 reports/hour.
4. System runs on Java 8.
5. Customers are not able to access customer information in Knowledge
   Base.
6. System gets backed up every 3 hours.

Details

♀ Support Manager

♀ Employee

♀ Technician

♀ OneDay

♀ Customer

🔵 ReportIssueUsingWebForm

Use Case Descriptions

Main	
Use Case ID	1b
Brief Description	UC1b allows Technician or Customer to report an issue using form available on company website
Primary Actors	Technician, Customer
Secondary Actors	Support Manager, Technician, Customer
Preconditions	1. Actor is logged in the system. 2. Issue is not listed in common issues
Main Flow of Events	1. UC is evoked when Customer or Technician selects "Report Issue" on company web site 2.1 Actor sets issue description

	2.2 Actor sets issue status. 2.3 Actor sets issue name. 3. IF Customer or Technician selects "Submit" 3.1 WHILE input data is not valid 3.1.1 Prompt actor to reenter data 3.2. System notifies Support Manager of issue submission. 3.3. INCLUDE(AssignIssueToTechnician) 3.4. Technician to whom the issue was assigned is notified. 3.5. IF actor is customer, notify customer
Alternative Flows	Customer or Technician leaves issue submit page
Post-conditions	Issue is created and saved.

⬤ ReportIssueByCallingSupportCenter
Use Case Descriptions

Main	
Use Case ID	1a
Brief Description	UC1a allows Technician or Customer to report an issue by calling support center
Primary Actors	Technician, Customer
Secondary Actors	Support Manager, Technician, Customer
Preconditions	1. Actor is logged in the system. 2. Issue is not listed in common issues
Main Flow of Events	1. UC is evoked when Customer or Technician calls support center for submitting new issue 2. Support technician chooses "Add issue reported by customer" from main menu 3.1 Support technician sets issue description 3.2 Support technician sets issue name 3,3 Support technician sets issue status 4. IF Support technician chooses "Submit Issue" 4.1 WHILE input data is not valid 4.1.1 prompt actor to reenter data 4.2 Issue is saved. 4.3 Actor that reported the issue is notified.
Alternative Flows	Support technician leaves issue submit page
Post-conditions	Issue is created and saved.

⊣E Set

⬤ CreateIssueTicket
Use Case Descriptions

Main	
Use Case ID	2
Brief Description	UC2 allows Technician to create a new issue ticket.
Primary Actors	Technician
Secondary Actors	Customer
Preconditions	1. Issue is verified and reproducible. 2. Enough information is known about the issue.

Main Flow of Events	1. UC starts when Technician selects "Create Issue Ticket" in the menu.
	2.1 Employee sets issue description
	2.2 Employee sets issue status.
	2.3 Employee sets issue name.
	2.4 Employee sets issue priority.
	3. Technician decides on an issue priority and sets issue deadline in case of medium or high priority.
	4. IF Technician selects "Submit Issue Ticket"
	4.1 WHILE input data is not valid
	4.1.1 Prompt Employee to reenter data
	4.2. System saves issue ticket to database.
	4.3. Customer is notified of ticket creation.
Alternative Flows	IF not enough information is known, customer is contacted.
Post-conditions	Issue ticket is created.

● ContactCustomer

● AssignIssueToTechnician

Sub Diagrams

Name	Description
🖼 AssignIssueToTechnician Activity	

● UpdateIssue

Use Case Descriptions

Main	
Use Case ID	3
Brief Description	UC3 allows Employee to update information about issue and change the issue status.
Primary Actors	Employee
Secondary Actors	Customer
Preconditions	Employee is logged in the system.
Main Flow of Events	1. UC starts when Employee selects "Update Issue" from the menu.
	2. INCLUDE (FindIssue)
	3. IF issue was found
	3.1. System shows edit form of issue.
	3.2 Employee updates issue description
	3.3 Employee updates issue status.
	3.4 Employee updates issue name.
	4. IF employee selects "Save Updates"
	4.1 WHILE input is not valid
	4.1.1 Prompt actor to reenter information
	4.2. System saves changes to the database.
	4.3. Customer is notified about changes.
Alternative Flows	Issue was not found.
Post-conditions	Updates of issue are saved.

● FindIssue

🔵 SearchCommonProblems

🔵 Register

🔵 ViewIssue

🔵 CheckDeadlineViolations

Sub Diagrams

Name	Description
🖼 CheckDeadlineViolations Activity	

🔵 ReportIssue

Use Case Descriptions

Main	
Use Case ID	1
Brief Description	UC1 allows Technician or Customer to report an issue.
Primary Actors	Technician, Customer
Secondary Actors	Support Manager, Technician, Customer
Preconditions	1. Actor is logged in the system. 2. Issue is not listed in common issues.
Main Flow of Events	See UC 1a or UC 1b
Alternative Flows	See UC 1a or UC 1b
Post-conditions	Issue is created and saved.

🔲 Issue Tracking System

Children

Name	Description
🔵 ReportIssue	Technician and customer can report an issue. Customer can use web form to report issue or can contact support manager.
🔵 CheckDeadlineViolations	Deadline violations of high/medium priority issues are checked every midnight. Support manager is notified of any violation.
🔵 ViewIssue	All system users can view information and status of issues.
🔵 Register	Customer can register in the system. Customer will be automatically logged into the system.

🔵 SearchCommonProblems	Customer can browse the knowledge base where common problems are listed.
🔵 FindIssue	Each issue has unique number by which it can be easily looked up. This action is necessary for viewing and updating issues.
🔵 UpdateIssue	Employee can update status of issue and add more information about issue. Customer will be notified when the issue is updated.
🔵 AssignIssueToTechnician	Support manager can assign reported issue to a specific technician. Once an issue is assigned, both customer and technician get notified.
🔵 ContactCustomer	Employee can contact customer when more information about issue is needed.
🔵 CreateIssueTicket	Technician can create a new issue ticket after the reported issue is verified and enough info is known about the issue.
🔵 ReportIssueByCallingSupportCenter	
🔵 ReportIssueUsingWebForm	

Class Diagram

CommonIssue
-keywords
-description

KnowledgeBase

CustomerManager
+registerCustomer()
+findCustomer(id)
+updateCustomer(id)
+removeCustomer(id)

DeadlineChecker
+checkDeadline()
+filterIssuesBy(attribute)
+notify()

Customer
-ID
+reportIssue()
+searchCommonIssues(keyword)

ContactInformation
-firstName
-surname
-eMail
-phoneNumber
-address

Issue
-ID
-description

IssueManager
+createIssueTicket(Issue)
+findIssueTicket(id)
+updateIssueTicket(id)
+deleteIssueTicket(id)
+listAssignedIssueForTechnician(Technician)
+notify()

IssueTicket
-ID
-description
-dateOfCreation
-deadline
-assignedTechnician
-reporter
-resolution

IssueHistory
-timestamp
-changedAttribute
-oldValue
-newValue

Employee
-ID
+contactCustomer()
+searchCommonIssues(keyword)

SupportManager
+assignIssueToTechnician(id)
+listTechniciansBySpecialization(Specialization)

Technician
+reportIssue()

<<enumeration>> Specialization
databases
compilers
networks
...

<<enumeration>> IssueStatus
Open
InProgress
Pending
Resolved
Closed

<<enumeration>> IssuePriority
VeryHigh
High
Medium
Low
Blocked

SupportManagerManager
+createSupportManager()
+findSupportManager(id)
+updateSupportManager(id)
+deleteSupportManager(id)

TechnicianManager
+createTechnician()
+findTechnician(id)
+updateTechnician(id)
+deleteTechnician(id)

Summary

Name	Description
CommonIssue	
CustomerManager	
KnowledgeBase	
DeadlineChecker	
Customer	
ContactInformation	
Issue	
IssueManager	
IssueTicket	
IssueHistory	
Employee	
SupportManager	
Technician	
Specialization	
IssueStatus	
IssuePriority	
SupportManagerManager	
TechnicianManager	

Details

- CommonIssue
- CustomerManager
- KnowledgeBase
- DeadlineChecker
- Customer
- ContactInformation
- Issue
- IssueManager
- IssueTicket
- IssueHistory
- Employee
- SupportManager
- Technician
- Specialization
- IssueStatus
- IssuePriority
- SupportManagerManager
- TechnicianManager

IssueTicket State Diagram
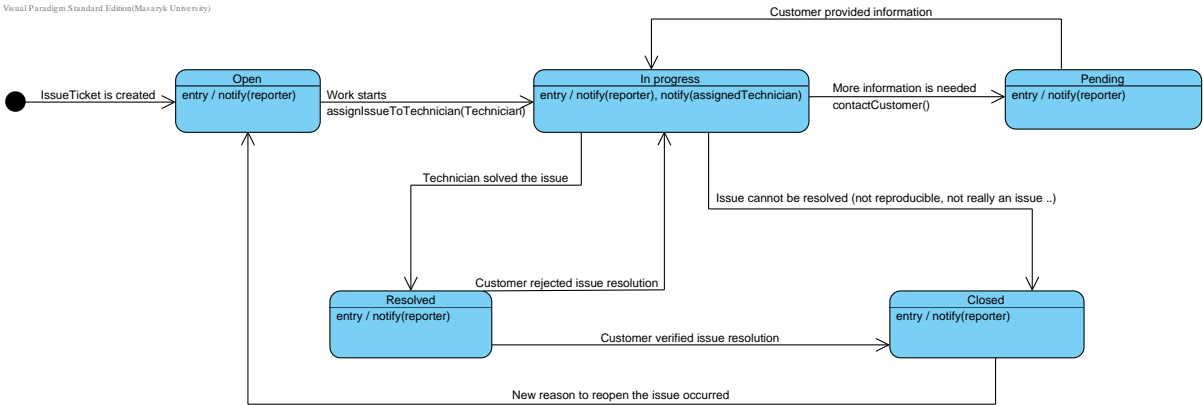
Summary

Name	Description
Open	
In progress	
Pending	
Resolved	
Closed	

Details

N/A

Open

Regions

Name	Description
notify(reporter)	

In progress

Regions

Name	Description
notify(reporter)	
notify(reporter), notify(assignedTechnician)	

Pending

Regions

Name	Description
notify(reporter)	
notify(assignedTechnician)	

Resolved

Regions

Name	Description
notify()	
notify(reporter)	

Closed

Regions

Name	Description
notify(reporter)	

Activity Diagram
AssignIssueToTechnician Activity
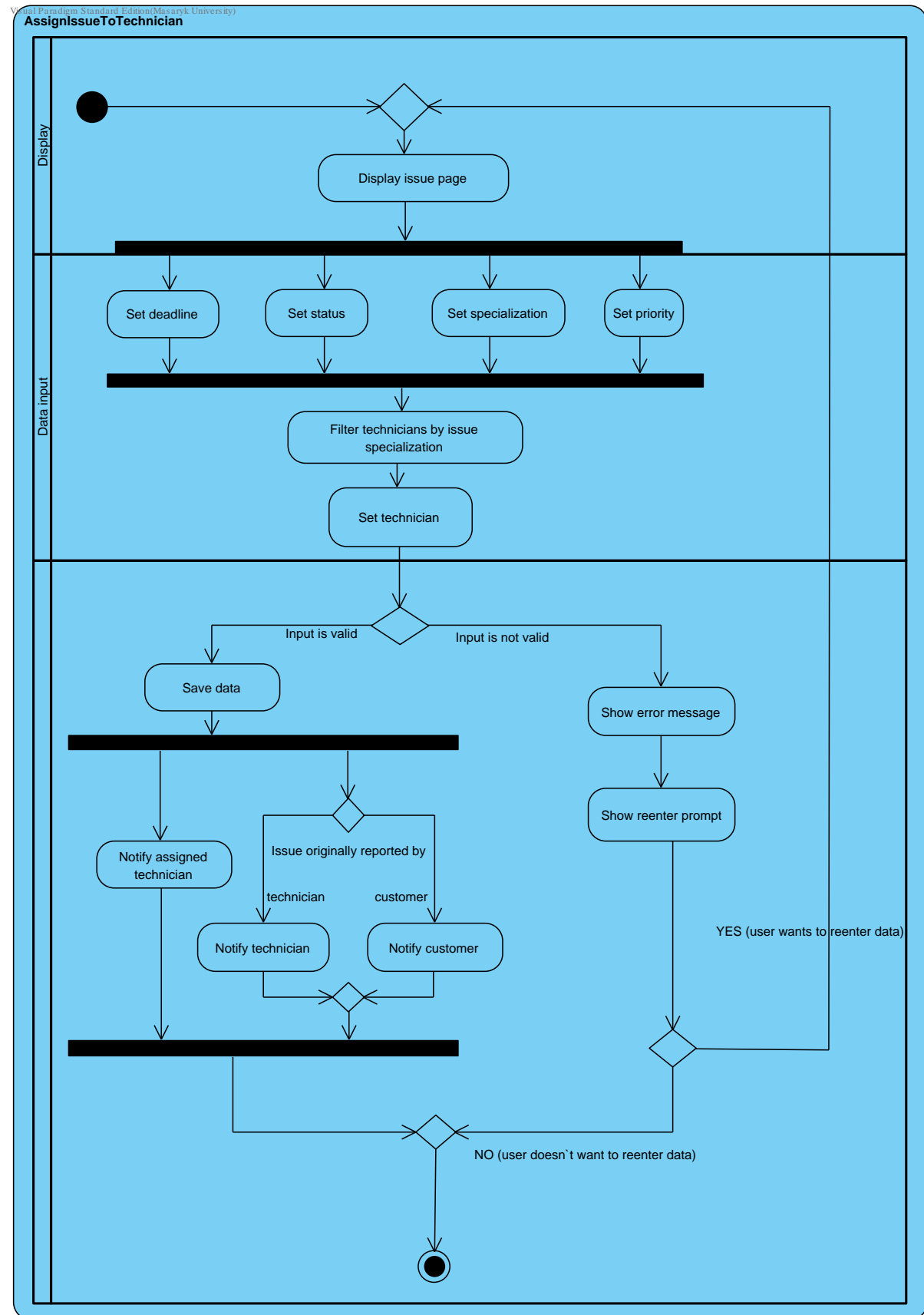
Summary

Name	Description
▥ Swimlane	
▤ Display	
▤ Data input	
▭ AssignIssueToTechnician	
▭ Display issue page	
▭ Set deadline	
▭ Set status	
▭ Set specialization	
▭ Set priority	
▭ Filter technicians by issue specialization	
▭ Set technician	
▭ Save data	
↠ Issue originally reported by	
▭ Notify technician	
▭ Show error message	
▭ Show reenter prompt	
▭ Notify assigned technician	
▭ Notify customer	

Details

▥ Swimlane

Activity Partitions

Display		
Contained Elements	**Name**	**Description**
	● N/A	
	↠ N/A	
	▭ Display issue page	
	⊬ N/A	

Contained Elements	Name	Description
	▭ Notify technician	
	▭ Notify assigned technician	
	▭ Notify customer	
	⤴ Issue originally reported by	
	⤴ N/A	
	◉ N/A	
	⇥ N/A	
	▭ Save data	
	⋛ N/A	
	⤴ N/A	
	⤴ N/A	
	▭ Show reenter prompt	
	▭ Show error message	
	⤴ N/A	

Data input		
Contained Elements	Name	Description
	▭ Set deadline	
	▭ Set status	
	▭ Set specialization	
	▭ Set priority	
	▭ Filter technicians by issue specialization	
	▭ Set technician	

⬤ N/A

▭ AssignIssueToTechnician

Children

Name	Description
▥ Swimlane	
⋛ N/A	
⋛ N/A	

⤴ N/A

▭ Display issue page

⇥ N/A

▭ Set deadline

- Set status
- Set specialization
- Set priority
- N/A
- Filter technicians by issue specialization
- Set technician
- N/A

- Save data
- N/A
- Issue originally reported by
- Notify technician
- Show error message
- Show reenter prompt
- N/A
- Notify assigned technician
- Notify customer
- N/A
- N/A
- N/A
- N/A

CheckDeadlineViolations Activity

CheckDeadlineViolations
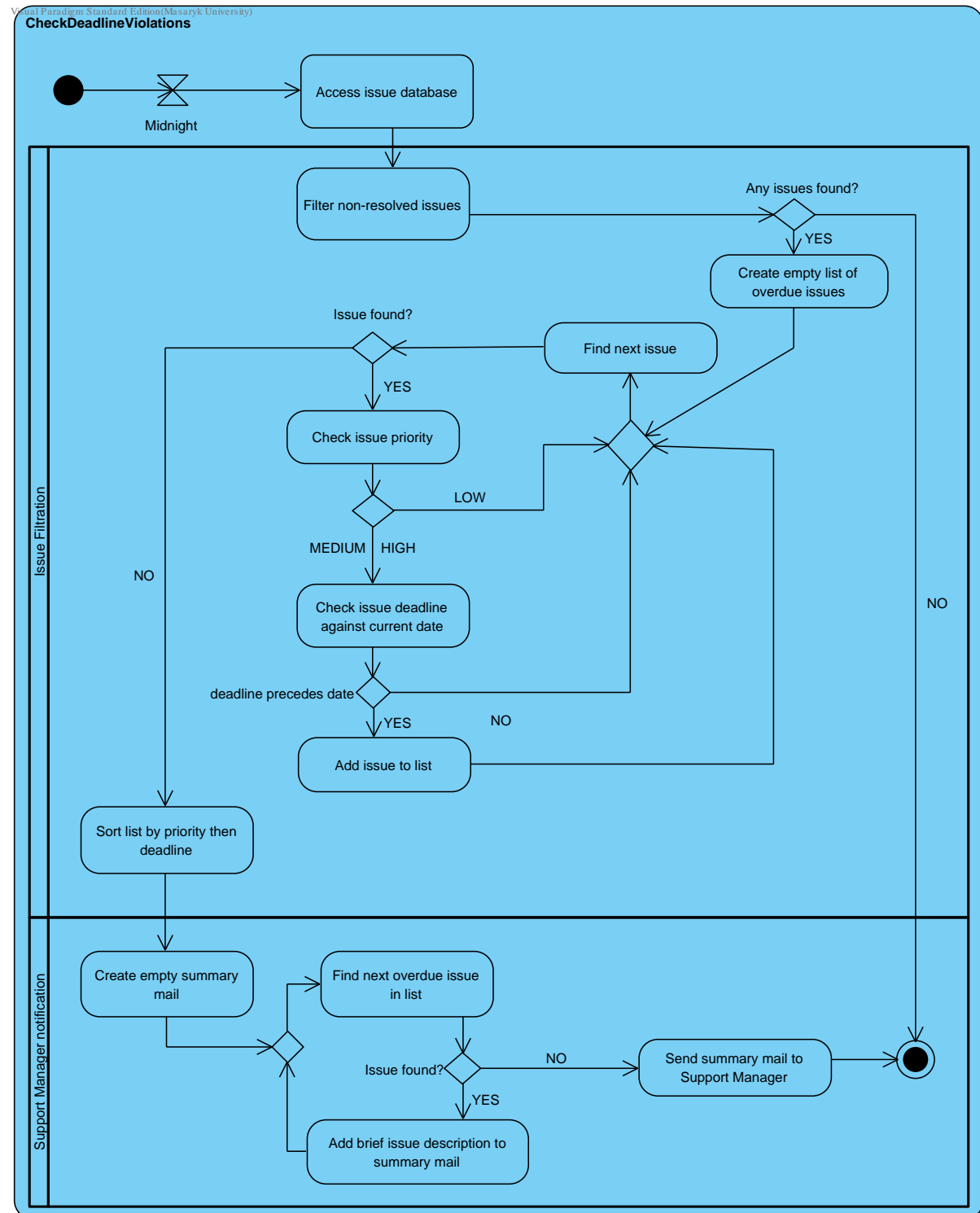
Summary

Name	Description
⊞ Swimlane2	

▤ Issue Filtration	
▤ Support Manager notification	
▣ CheckDeadlineViolations	
◤ Midnight	
▭ Access issue database	
▭ Filter non-resolved issues	
⤳ Any issues found?	
▭ Create empty list of overdue issues	
▭ Find next issue	
⤳ Issue found?	
▭ Check issue priority	
▭ Check issue deadline against current date	
⤳ deadline precedes date	
▭ Add issue to list	
▭ Sort list by priority then deadline	
▭ Create empty summary mail	
▭ Find next overdue issue in list	
⤳ Issue found?	
▭ Add brief issue description to summary mail	
▭ Send summary mail to Support Manager	

Details

▥ Swimlane2

Activity Partitions

Issue Filtration		
Contained Elements	**Name**	**Description**
	▱ Filter non-resolved issues	
	⤳ Any issues found?	
	▱ Find next issue	
	⤳ Issue found?	
	▱ Check issue priority	
	⤳ N/A	
	▱ Check issue deadline against current date	
	⤳ deadline precedes date	
	▱ Add issue to list	
	▱ Create empty list of overdue issues	
	▱ Sort list by priority then deadline	
	⤳ N/A	

Support Manager notification		
Contained Elements	**Name**	**Description**
	◉ N/A	
	▱ Send summary mail to Support Manager	
	▱ Add brief issue description to summary mail	
	▱ Find next overdue issue in list	
	▱ Create empty summary mail	
	⤳ Issue found?	
	⤳ N/A	

⬤ N/A

▱ CheckDeadlineViolations

Children

Name	Description
⬤ N/A	
▱ Access issue database	
⊞ Swimlane2	
⚑ Midnight	

⚑ Midnight

- Access issue database
- Filter non-resolved issues
- Any issues found?
- Create empty list of overdue issues
- N/A
- Find next issue
- Issue found?
- Check issue priority
- N/A
- Check issue deadline against current date
- deadline precedes date

- Add issue to list
- Sort list by priority then deadline
- Create empty summary mail
- N/A
- Find next overdue issue in list
- Issue found?
- Add brief issue description to summary mail
- Send summary mail to Support Manager
- N/A
- N/A
- N/A

Entity Relationship Diagram1

Visual Paradigm Standard Edition(Masaryk University)

CommonIssueKeyword

IssueID	bigint(19)
keyword	varchar(255)

EmployeeSpecialization

EmployeeID	bigint(19)
SpecializationID	integer(10)

Specialization

SpecializationID	integer(10)
SpecializationName	varchar(255)

Issue

IssueID	bigint(19)
Description	varchar(255)
ReporterEmployeeID	bigint(19)
ReporterCustomerID	bigint(19)

Employee

EmployeeID	bigint(19)
EmployeeType	varchar(15)
ContactInformationID	bigint(19)

TicketSpecialization

IssueTicketID	bigint(19)
SpecializationID	integer(10)

IssueTicket

IssueTicketID	bigint(19)
Description	varchar(255)
CreationDate	date
Deadline	date
Resolution	varchar(255)
ReporterEmployeeID	bigint(19)
ReporterCustomerID	bigint(19)
IssueStatusID	integer(10)
AssignedTechnicianID	bigint(19)
IssuePriorityID	integer(10)
SpecializationID	integer(10)

IssueHistory

IssueTicketID	bigint(19)
timeStamp	timestamp
AttributeName	varchar(30)
OldValue	varchar(30)
NewValue	varchar(30)

Customer

CustomerID	bigint(19)
ContactInformationID	bigint(19)

ContactInformation

ContactInformationID	bigint(19)
FirstName	varchar(255)
Surname	varchar(255)
eMail	varchar(100)
PhoneNumber	varchar(15)
Address	varchar(255)

IssuePriority

PriorityID	integer(10)
PriorityName	varchar(15)

IssueStatus

StatusID	integer(10)
StatusName	varchar(20)

Summary

Name	Description
EmployeeSpecialization	
Specialization	
CommonIssueKeyword	
TicketSpecialization	
Issue	
Employee	
IssueTicket	
IssueHistory	
Customer	
ContactInformation	
IssuePriority	
IssueStatus	

Details

EmployeeSpecialization

Specialization

CommonIssueKeyword

- TicketSpecialization
- Issue
- Employee
- IssueTicket
- IssueHistory
- Customer
- ContactInformation
- IssuePriority
- IssueStatus