



K.S.K COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

STREAMLINING TICKET ASSIGNMENT FOR EFFICIENT

SUPPORT OPERATIONS

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PROBLEM STATEMENT:

In many organizations, support tickets are manually assigned to agents, leading to uneven workload distribution, delayed resolutions, and customer dissatisfaction. There is a need for an automated and efficient system to manage and assign tickets intelligently. In many customer support operations, ticket assignment is often manual, inefficient, and prone to delays or errors. Support agents may be overloaded or underutilized due to uneven ticket distribution, leading to slower response times, reduced customer satisfaction, and higher operational costs. The lack of an intelligent, automated system for assigning tickets based on priority, category, and agent expertise results in poor resource utilization and inconsistent service quality.

OBJECTIVE:

To develop a smart ticket management system that automates and optimizes ticket assignment to support agents, reducing response time and improving customer satisfaction.

1. **To automate ticket assignment** using predefined rules or AI-based algorithms to reduce manual workload and human error.
2. **To ensure quick and accurate routing** of support tickets to the most suitable agents or departments based on skill set, availability, and priority.
3. **To minimize response and resolution times** by optimizing the ticket distribution process.
4. **To enhance customer satisfaction** through faster issue handling and consistent support quality.
5. **To improve team productivity and workload balance** by evenly distributing tickets among agents.
6. **To provide data-driven insights** on ticket flow, agent performance, and operational efficiency through analytics and reporting tools.

7. **To integrate ticketing tools** (like Zendesk, Freshdesk, or ServiceNow) with automated assignment workflows for seamless operations.
8. **To establish measurable KPIs** (e.g., first response time, resolution rate, and SLA compliance) for continuous process improvement.

METHODOLOGY:

1. Problem Identification:

The existing ticket assignment process was analyzed to identify issues such as manual delays, uneven workload distribution, and slow response times.

2. Data Collection:

Historical support data, including ticket categories, response times, agent performance, and customer feedback, was gathered from the existing support system.

3. Process Analysis:

The workflow of current ticket management was mapped to understand bottlenecks and inefficiencies in ticket routing and resolution.

4. Automation Design:

Automated rules and algorithms were developed to assign tickets based on priority, issue type, agent skill, and workload balance. Machine learning or rule-based logic was applied where suitable.

5. System Integration:

The automation module was integrated with the existing helpdesk or CRM software (e.g., Zendesk, Freshdesk, or ServiceNow) to enable seamless operation.

6. Testing and Validation:

The new ticket assignment process was tested with real-time data to measure accuracy, speed, and workload distribution. Adjustments were made based on initial results.

7. Performance Evaluation:

Key performance indicators (KPIs) such as first response time,

resolution time, SLA compliance, and customer satisfaction were monitored before and after implementation.

8. Continuous Improvement:

Feedback from support agents and customers was used to refine the system and enhance efficiency over time.

Enhance Operational Efficiency:

Minimize manual intervention and reduce the average ticket resolution time by ensuring balanced workload distribution among agents.

1. Scalability and Adaptability:

Design the system to easily scale with increasing ticket volumes and adapt to changing business needs or team structures.

2. Improve Customer Experience:

Ensure timely responses and faster issue resolution, thereby increasing customer satisfaction and retention rates.

3. Data-Driven Insights:

Collect and analyze ticket assignment and resolution data to identify performance trends, workload bottlenecks, and opportunities for process improvement.

SKILLS:

- ServiceNow Catalog Item Creation
- UI Policies & UI Actions
- Update Set Management
- Testing & Deployment

- Team Collaboration

TASK INITIATION:

The project “**Streamlining Ticket Assignment for Efficient Support Operations**” was initiated to enhance support efficiency by automating the ticket assignment process. The team identified key problems in manual ticket handling such as delays and uneven workload.

Technologies and tools were selected, and responsibilities were divided among members. A clear plan was created to guide the design, development, and testing phases, forming a strong base for successful project completion.

FEATURES:

Automated Ticket Assignment: Automatically routes tickets to the appropriate support team or agent based on category, priority, and impact. **Dynamic Workflow:** Uses ServiceNow workflows to handle ticket creation, assignment, and resolution efficiently.

Role-Based Access Control: Ensures data security and access control through user roles and group permissions.

Real-Time Notifications: Sends instant updates to agents and users about ticket status changes and assignments.

SLA Monitoring: Tracks service level agreements to ensure timely responses and escalations when needed.

Reporting and Analytics: Provides insights into ticket volume, team performance, and resolution trends.

Improved User Experience: Offers a streamlined and transparent support process for both users and technicians.

Modules Implemented :

The project “Streamlining Ticket Assignment for Efficient Support Operations” was developed on the ServiceNow platform and implemented through a structured modular approach. Each module played a vital role in building an automated, role-based ticket assignment system. The following modules were created and configured during the project development:

1. User Creation:

- Different users were created in ServiceNow to represent employees, support agents, and administrators, enabling role-based access and workflow execution.

2. Group Creation:

- Support groups were configured to organize users according to their departments and areas of responsibility (e.g., IT Support, Network Team, Hardware Support).

3. Role Management:

- Custom roles were defined to manage permissions and control access to specific ServiceNow features, ensuring security and accountability.

4. Table Creation:

- Custom tables were designed to store and manage ticket data efficiently, allowing automation rules and workflows to process incidents dynamically.

5. Role and User Assignment:

- Roles were assigned to appropriate groups and users to control access rights and determine who can view, modify, or resolve tickets.

6. Table Role Assignment:

- Permissions were granted to ensure that only authorized groups could interact with the ticket table, maintaining data integrity and security.

7. Access Control List (ACL):

- ACL rules were created to manage and restrict user access to data based on roles and responsibilities.

8. Flow & Outputs:

- The final flow automated the entire ticket assignment process.

When a new ticket is created, it is automatically analyzed and routed to the appropriate support group or agent. Notifications and SLA monitoring ensure timely resolution and complete visibility.

IMPLEMENTATION STEPS:

STEP 1: CREATE USERS

The screenshot shows the ServiceNow User creation interface. The main form contains the following fields:

User ID: Katherine.Pierce	First name: Katherine
Last name: Pierce	Middle name: null
Email: katherine.pierce@service-now.com	Display name: Katherine Pierce
Display name: Katherine Pierce	Role: null
Is administrator: <input type="checkbox"/>	Is system user: <input type="checkbox"/>
Is external user: <input type="checkbox"/>	Is locked out: <input type="checkbox"/>
Active: <input checked="" type="checkbox"/>	Is password required: <input type="checkbox"/>
Last login: 2023-09-01 10:00:00	

On the right side, there are several tabs:

- General
- Address
- Phone numbers
- Mobile phone
- Other phone
- Fax
- Comments
- Notes

Below the tabs, there is a section for "Contact Information" with fields for First name, Last name, Middle name, Title, and Application.

The screenshot shows the ServiceNow User creation interface for a different user. The main form contains the following fields:

User ID: Movie.Moeller	First name: Movie
Last name: Moeller	Middle name: null
Email: movie.moeller@service-now.com	Display name: Movie Moeller
Display name: Movie Moeller	Role: null
Is administrator: <input type="checkbox"/>	Is system user: <input type="checkbox"/>
Is external user: <input type="checkbox"/>	Is locked out: <input type="checkbox"/>
Active: <input checked="" type="checkbox"/>	Is password required: <input type="checkbox"/>
Last login: 2023-09-01 10:00:00	

On the right side, there are several tabs:

- General
- Address
- Phone numbers
- Mobile phone
- Other phone
- Fax
- Comments
- Notes

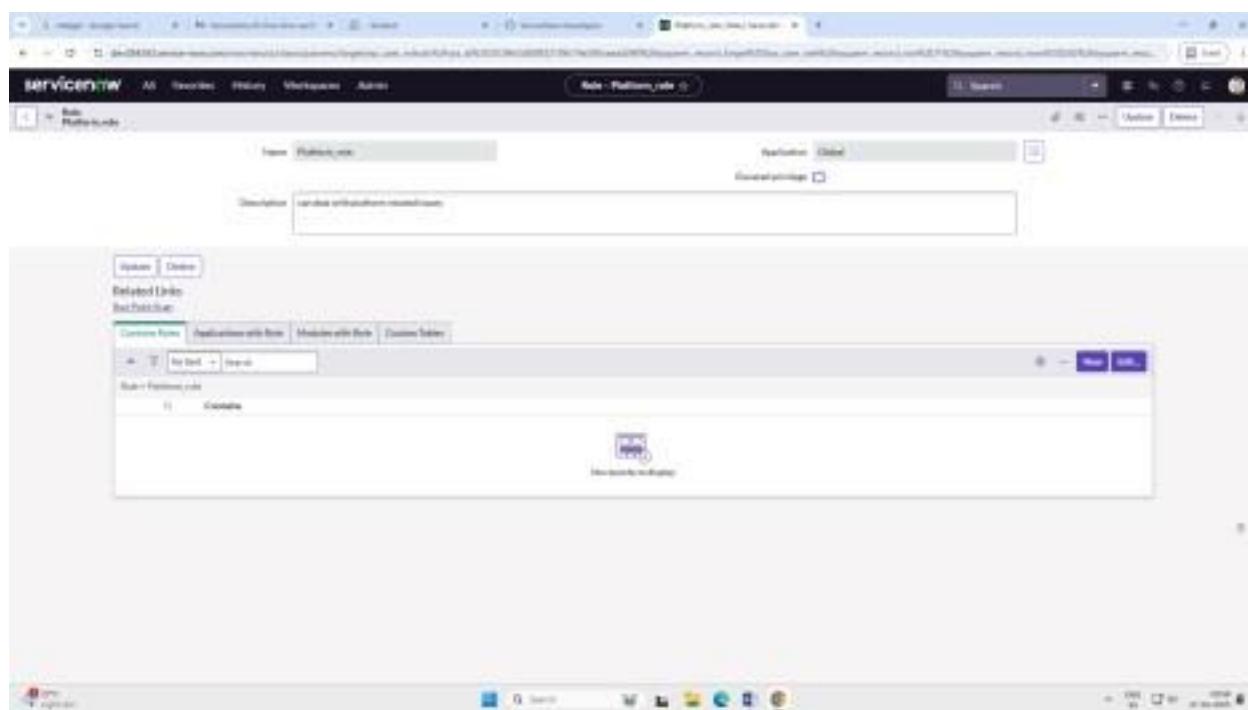
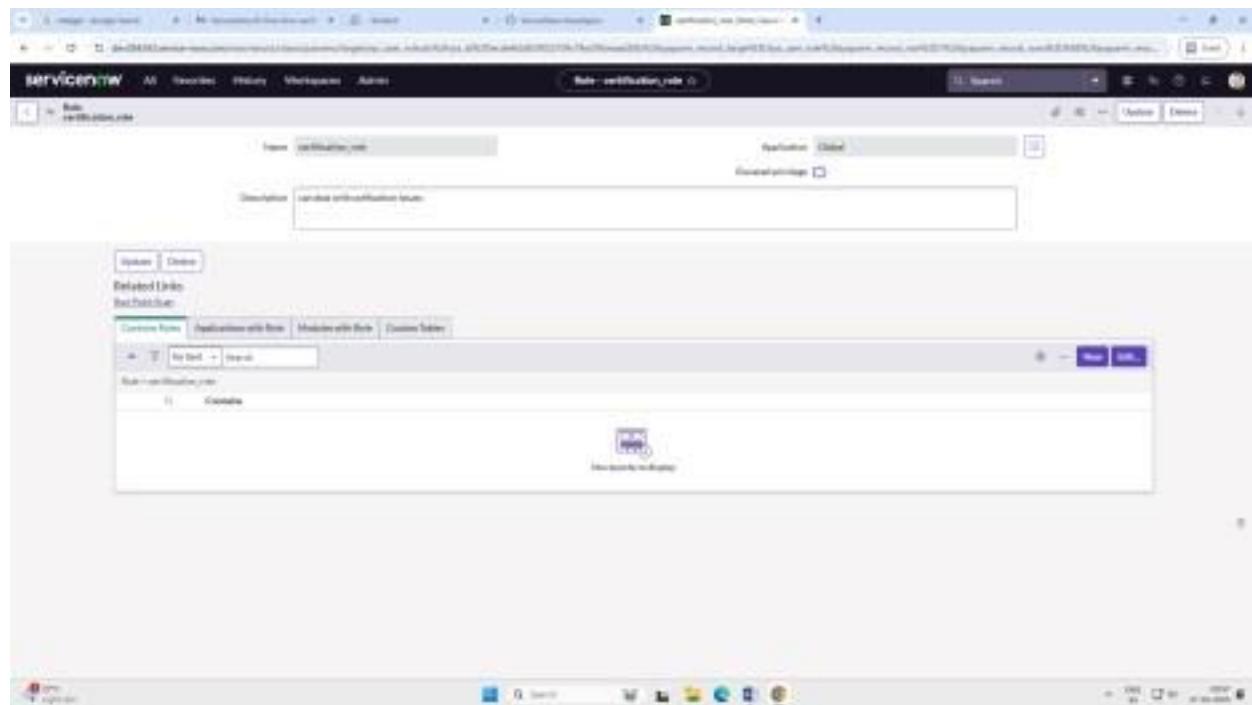
Below the tabs, there is a section for "Contact Information" with fields for First name, Last name, Middle name, Title, and Application.

STEP 2: CREATE GROUPS

The screenshot shows the 'User - Create' screen in the ServiceNow interface. The top navigation bar includes 'ServiceNow', 'All', 'Records', 'History', 'Workspaces', 'Admin', and 'User - Create'. The main form has sections for 'User ID' (set to 'Unconnected'), 'First name' (set to 'James'), 'Last name' (set to 'Morrison'), 'Title' (left empty), 'Department' (left empty), 'Password' (checkbox unchecked), 'Locked' (checkbox unchecked), and 'Active' (checkbox checked). To the right, there is a 'Contact' section with fields for 'Email' (set to 'jamesmorrison123@gmail.com'), 'Identity type' (set to 'Email'), 'Username' (left empty), 'Last name' (left empty), 'Customer Integration' (set to 'Default'), 'Title name' (set to 'Business Service User, Registered'), 'Title former' (set to 'Retail Sales Rep'), 'Business phone' (left empty), 'Mobile phone' (left empty), and 'Phone' (button labeled 'Click to add...'). Below the main form is a 'Related Links' section with links to 'My Applications', 'My Dashboards', 'My Locations', and 'My Worklist'. A 'List View' tab is selected, showing a table with columns 'Name', 'Last name', 'Title', and 'Status'. The table contains one row for 'James Morrison'.

The screenshot shows the 'Group - Create' screen in the ServiceNow interface. The top navigation bar includes 'ServiceNow', 'All', 'Records', 'History', 'Workspaces', 'Admin', and 'Group - Create'. The main form has sections for 'Name' (set to 'Retail'), 'Manager' (set to 'James Morrison'), and 'Group email' (left empty). Below the form is a 'Related Links' section with links to 'My Applications', 'My Dashboards', 'My Locations', and 'My Worklist'. A 'List View' tab is selected, showing a table with columns 'Name', 'Last name', 'Title', and 'Status'. The table contains one row for 'Retail'.

STEP 3: CREATE ROLES



STEP 4: CREATE TABLES

Column label	Type	Reference	Max length	Default value	Display
Approved	Boolean	Boolean True	40	false	False
Approved by	String	String	40		False
Approved date	String	String	40		False
Comments	String	String	40		False
Comments by	String	String	40		False
Comments date	String	String	40		False
Created	String	String	40		False
Created by	String	String	40		False
Created date	String	String	40		False
Deleted	Boolean	Boolean True	40	false	False
Deleted by	String	String	40		False
Deleted date	String	String	40		False
modified	DateTime	String	40		False
Mod ID	Text	String	40		False
Owner	String	String	40		False
Ref ID	String	String	40		False
Received	DateTime	String	40		False

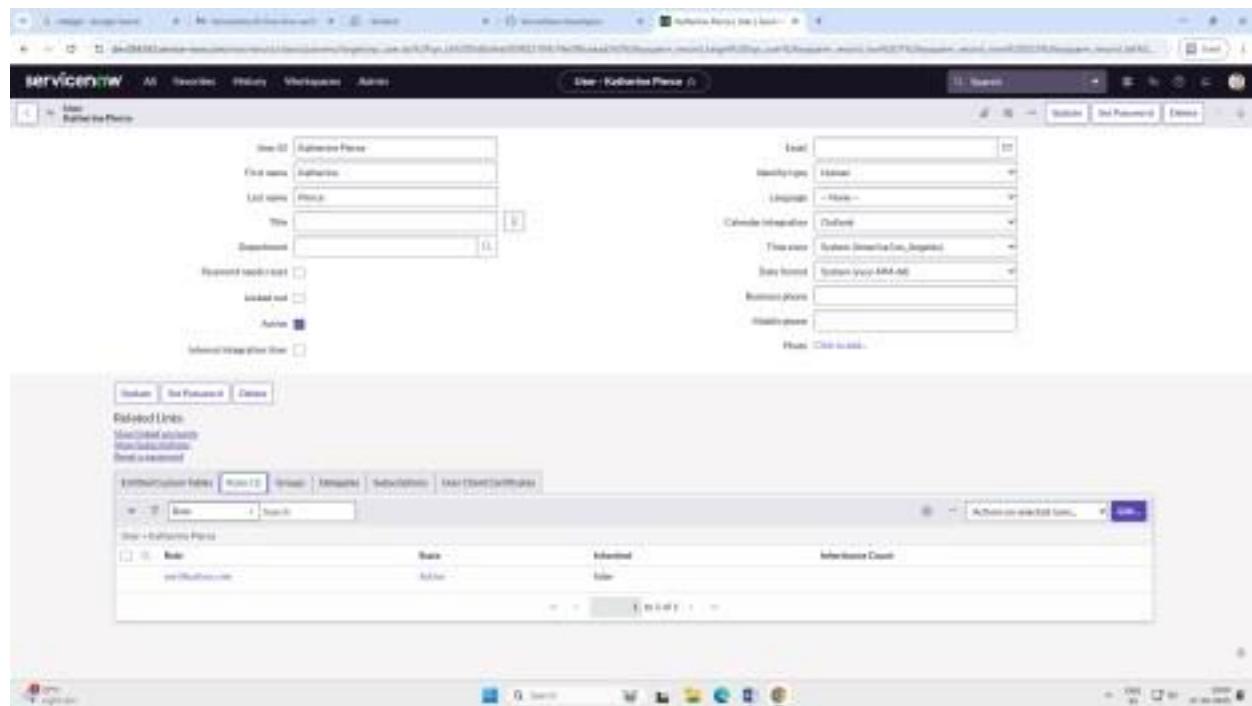
The screenshot shows a ServiceNow application window. At the top, there are tabs for 'Table - Operations related' and 'List - Operations'. Below the tabs is a search bar and a 'New' button. The main area contains a table with the following data:

Index	Name	Type	Created Date	Owner	Last Update
1	Run ID	String	2023-09-26T10:00:00Z	System	2023-09-26T10:00:00Z
2	Run ID	String	2023-09-26T10:00:00Z	System	2023-09-26T10:00:00Z
3	Run ID	Date/Time	2023-09-26T10:00:00Z	System	2023-09-26T10:00:00Z
4	Run ID	Date/Time	2023-09-26T10:00:00Z	System	2023-09-26T10:00:00Z

Below the table are buttons for 'Delete', 'Update', and 'Delete All Records'. A 'Related Links' section follows, listing items like 'Data System', 'Logistics', 'Inventory', 'Location', 'Level List', 'Run Event', 'Run List', 'Run Result List', 'Run by Run Center', 'Run Function', and 'LastRunListList'. At the bottom, there is a 'Run History' table with four entries:

Name	Created Date	Operator	Type	Owner	Last Update
Run ID	2023-09-26T10:00:00Z	System	String	System	2023-09-26T10:00:00Z
Run ID	2023-09-26T10:00:00Z	System	String	System	2023-09-26T10:00:00Z
Run ID	2023-09-26T10:00:00Z	System	String	System	2023-09-26T10:00:00Z
Run ID	2023-09-26T10:00:00Z	System	String	System	2023-09-26T10:00:00Z

STEP 5: ASSIGN ROLES & USERS TO GROUPS



User ID:

First name: Maria

Last name: Hansson

Title:

Description:

Preferred language:

Address:

Active:

Informed language filter:

Email: maria.hansson@service-now.com

Home type: Home

Language: - None -

Calendar integration: Default

Time zone: System Default (Europe/Berlin)

City format: System (en-US-MM-DD)

Business phone:

Mobile phone:

Phone: Click to add...

Related Lists:

- Information Table
- Ticket
- Search
- Information Table
- Subscriptions
- TaskListComments

Information Table

Action	Name	Type	Created	InformationTable
View	InformationTable	Table	2023-07-10 10:00:00	InformationTable

Ticket

Action	Role	State	Assigned	InformationTable
View	InformationTable	Active	None	InformationTable

STEP 6: ASSIGN ROLES TO TABLE

Type: Record

Owner: User

Action Type: Allow

Allow:

Deny:

Role: InformationTable

Name: InformationTable

Description: Default access control for InformationTable table

Notes: No conditions are defined.

Conditions

Allow Control Roles have precedence over Deny if you have different descending conditions:

- Allow Access: Allow access to a resource or object (without a prefix).
- Deny Access: Deny access to a resource or object (all conditions defined).

Deny Conditions

- InformationTable
- InformationTable
- InformationTable
- InformationTable

The screenshot shows the ServiceNow Access Control interface for creating a new record. The top navigation bar includes 'All', 'Records', 'History', 'Workspaces', 'Admin', 'Access Control', and 'Search'. The main title is 'Access Control - u_connections_related'. The form fields include:

- Type: Record
- Owner: user
- Creation Type: Admin
- Notes over ride:
- Role Security:
- Name: Operations module_operations_record
- Description: Default access control to operations module
- Buttons: 'Save' (highlighted), 'Cancel', 'Print'

Below the form is a 'Conditions' section with a note about defining rules for access based on roles and users. It lists three conditions:

- Allow Admin: Allow access to a record to if it's created by me.
- Allow Access: Deny access to a record unless all conditions are met.

The 'Role' dropdown in the 'Conditions' section contains the following options:

- Operations录
- operations_record
- operations
- Deny access...

STEP 7: CREATE ACL

This screenshot is identical to the one above, showing the ServiceNow Access Control interface for creating a new record. The top navigation bar, form fields, and 'Conditions' section with its three defined conditions are all present. The 'Role' dropdown in the 'Conditions' section also lists the same four options: 'Operations录', 'operations_record', 'operations', and 'Deny access...'. The 'Save' button is again highlighted.

STEP 8: FLOW & OUTPUTS

The screenshot displays the Oracle Business Process Designer interface, showing two parallel business processes:

- Regarding Certificate**: Triggered by "Opportunities-Moved-To-Next-Step" and "Opportunity-Updated". It performs an "Update Opportunity Record" action and adds a history item.
- Regarding Platform**: Triggered by "Opportunities-Moved-To-Next-Step" and "Opportunity-Updated". It performs an "Update Opportunity Record" action and adds a history item.

Both processes have an "Update Record" error handler.

Outcome :

The project successfully automates the entire ticket assignment process, reducing manual workload and improving service efficiency. It ensures that each ticket is handled by the right team, minimizes delays, and maintains SLA compliance. The automation enhances productivity, transparency, and customer satisfaction by providing real-time updates and balanced task distribution among agents.

1. **Reduced ticket resolution time** through faster and more accurate ticket routing.
2. **Improved customer satisfaction levels** due to timely and efficient support responses.
3. **Balanced workload distribution** among support agents, minimizing burnout and improving performance.
4. **Enhanced operational efficiency** through automation of manual ticket assignment tasks.
5. **Better visibility into support performance** via real-time analytics and reporting dashboards.
6. **Increased first-contact resolution rate** as tickets reach the most qualified agents immediately.
7. **Optimized resource utilization** by matching ticket complexity with agent expertise.
8. **Continuous process improvement** driven by insights from data and performance metrics.

Conclusion:

The project “Streamlining Ticket Assignment for Efficient Support Operations” effectively demonstrates how automation can improve IT service management using the ServiceNow platform. By eliminating manual ticket routing, it ensures faster resolution times, efficient workload management, and consistent service quality. This implementation showcases the power of workflow automation and smart assignment logic in achieving operational excellence and better end-user experience.