

Operator's Manual

Medical Message Classification Web Application

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Conforms to: IEEE Std 1063-2001 Standard for Software User Documentation

1. Introduction

1.1 Purpose

This Operator's Manual provides instructions for using the Medical Message Classification Web Application. It is intended for end users, including individuals without technical backgrounds, to submit health-related messages and receive structured summaries and detailed medical reports. The manual explains how to access, operate, and troubleshoot the system, adhering to the **IEEE Std 1063-2001** standard for clarity and usability.

1.2 Scope

This manual covers:

- Accessing the web application.
- Submitting health-related messages.
- Understanding the structured summary and detailed report outputs.
- Troubleshooting common issues.
- Contacting support for assistance.

It does not cover system administration, backend configuration, or model training processes.

1.3 Audience

The primary audience is non-technical users, such as patients or individuals seeking to analyze health-related messages. Basic familiarity with web browsers (e.g., Chrome, Firefox) is assumed.

1.4 Definitions, Acronyms, and Abbreviations

- **Web Application:** The Medical Message Classification Web Application.
- **Structured Summary:** A table displaying key information (e.g., symptoms, diagnosis) in a concise format.

- **Detailed Report:** A narrative medical report with sections like Overview, Symptoms, and Medications.
- **LLM:** Large Language Model (used internally to process inputs).
- **JSON:** JavaScript Object Notation (format for structured output, not visible to users).

1.5 Conventions

- **Bold text:** Indicates buttons or clickable elements (e.g., **Analyze and Generate Report**).
- **Italics:* Indicates placeholder text (e.g., *your symptoms*).
- Instructions are presented in numbered steps for clarity.

1.6 References

- IEEE Std 1063-2001, Standard for Software User Documentation.
 - Technical Requirements Specification (artifact_id: 67e87acf-ce28-4195-a565-81b8c913b892).
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2. System Overview

2.1 Description

The Medical Message Classification Web Application allows users to input health-related messages (e.g., descriptions of symptoms) and receive two types of outputs:

- **Structured Summary:** A table listing key details, such as symptoms, medical category, diagnosis, recommendations, and suggested medications.
- **Detailed Report:** A patient-friendly narrative report with sections like Overview, Symptoms, Diagnosis, Medications, and What to Do Now.
The application is web-based, accessible via desktop or mobile browsers, and features a clean, intuitive interface with a blue-and-white color scheme and the Inter font.

2.2 Intended Use

The system is designed to assist users in understanding health-related messages by providing structured and narrative outputs. It is not a substitute for professional medical advice. Users should consult healthcare professionals for diagnosis and treatment.

2.3 System Requirements

- **Hardware:** Desktop, laptop, tablet, or smartphone.
- **Software:** Modern web browser (e.g., Google Chrome, Mozilla Firefox, Safari) with JavaScript enabled.
- **Internet:** Stable connection for accessing the application and processing requests.

3. Operating Instructions

3.1 Accessing the Application

1. Open a web browser (e.g., Chrome, Firefox).
2. Navigate to the application URL: <http://0.0.0.0:8501>
3. Verify that the homepage loads, displaying a title (e.g., "Medical Message Classifier") and a text input form.

3.2 Submitting a Health-Related Message

1. On the homepage, locate the text input form labeled *"Enter your health-related message or symptoms"*.
2. Type a description of your symptoms or health concern (e.g., *"I have a headache, fever, and sore throat"*).
3. Click the **Analyze and Generate Report** button below the form.
4. Wait for the results to load (typically within 5 seconds).

3.3 Viewing Results

After submitting, the results appear on the same page, divided into two sections:

3.3.1 Structured Summary

- **Description:** A table displaying key information extracted from your input.
- **Fields:**
 - **Category:** Medical field (e.g., "Respiratory") and urgency level (e.g., "Moderate").
 - **Symptoms:** List of symptoms (e.g., "Headache, Fever, Sore Throat").
 - **Diagnosis:** Likely condition (e.g., "Possible Viral Infection").
 - **Recommendations:** Suggested actions (e.g., "Rest, stay hydrated").
 - **Suggested Medications:** Medications and analogs (e.g., "Ibuprofen or Paracetamol").
 - **Generalization:** Broader context (e.g., "Common in seasonal infections").
- **How to Use:** Review the table for a quick summary. Consult a doctor for confirmation.

3.3.2 Detailed Report

- **Description:** A narrative report formatted with headings, paragraphs, and bold text for readability.
- **Sections:**
 - **Overview:** Summary of your input.
 - **Symptoms:** Detailed description of symptoms.
 - **Diagnosis:** Explanation of the likely condition.
 - **Medications:** Suggested medications with usage notes.

- **What to Do Now:** Actionable advice.
- **How to Use:** Read the report for a comprehensive explanation. Use it to prepare for discussions with a healthcare provider.

3.4 Navigating the Interface

- **Form:** Located at the top of the page for entering new messages.
- **Results:** Displayed below the form after submission, with a fade-in animation for clarity.
- **Responsive Design:** The interface adapts to your device (desktop or mobile). On mobile, use portrait mode for the best experience.

3.5 Example Usage

Scenario: You have a persistent cough and fatigue.

1. Access the application in your browser.
 2. Enter: *"I've had a cough for three days and feel very tired"* in the form.
 3. Click **Analyze and Generate Report**.
 4. Review the **Structured Summary** (e.g., Category: "Respiratory, Moderate"; Symptoms: "Cough, Fatigue").
 5. Read the **Detailed Report** for advice (e.g., "Rest, monitor symptoms, consult a doctor if the cough worsens").
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4. Safety and Precautions

4.1 Warnings

- **Not a Medical Device:** The application provides informational outputs, not medical diagnoses. Always consult a licensed healthcare professional for medical advice.
- **Data Privacy:** Do not enter sensitive personal information (e.g., full name, address) in the message field, as the system is not designed for secure storage of personal data.
- **Emergency Situations:** For urgent medical issues (e.g., chest pain, difficulty breathing), seek immediate medical attention instead of using the application.

4.2 Precautions

- Ensure a stable internet connection to avoid submission errors.
 - Verify that your browser is up to date for optimal performance.
 - Review outputs carefully, as automated systems may occasionally produce inaccuracies.
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5. Troubleshooting

5.1 Common Issues and Solutions

Issue	Solution
Page does not load	Check your internet connection and refresh the page. Try a different browser.
Analyze and Generate Report does not respond	Ensure the form is not empty. Wait 10 seconds and try again.
Results are not displayed	Refresh the page and resubmit. Contact support if the issue persists.
Output contains errors or is unclear	Resubmit with a more detailed message (e.g., add specific symptoms).
Interface looks distorted on mobile	Rotate to portrait mode or use a larger screen. Clear browser cache.

5.2 Error Messages

- **“Invalid Input”**: The message field is empty or contains unsupported characters. Enter a valid health-related description.
- **“Processing Error”**: The system encountered an issue with the input. Try rephrasing the message or contact support.
- **“Service Unavailable”**: The server is temporarily down. Wait a few minutes and try again.

5.3 When to Contact Support

If issues persist after troubleshooting or you encounter unexpected behavior (e.g., no results after multiple attempts), contact support (see Section 6.2).

6. Support and Contact Information

6.1 Documentation Updates

This manual is updated as needed to reflect system changes. Check the application website for the latest version (version 1.0 as of May 17, 2025).

6.2 Contact Information

- **Support Email**: danaumenko_1@edu.hse.ru

- **Response Time:** Expect a response within 24–48 hours.
For urgent medical concerns, contact a healthcare provider or emergency services immediately.

6.3 Feedback

Users are encouraged to provide feedback on the application's usability and outputs via the support email. Feedback helps improve the system for future users.

7. Appendices

7.1 Glossary

- **Health-Related Message:** A user's description of symptoms or medical concerns.
- **Responsive Design:** The ability of the interface to adapt to different screen sizes.
- **Fade-In Animation:** A visual effect where results appear smoothly on the page.

7.2 Sample Output

Medical Report Generator

Enter health message:

Patient reports severe flank pain and blood in urine.

Analyze and Generate Report

Short report:

Symptoms	Flank Pain, Hematuria, Nausea
Category	Medical field: Urology, Urgency level: Urgent
Diagnosis	Kidney Stones
Recommendations	Increase fluid intake, pain management, urology follow-up
Suggested medications	Ibuprofen (analogs: Advil, Motrin); Tamsulosin (analogs: Flomax, Urimax)
Generalization	Flank pain due to renal calculi

Detailed Report:

Overview

You have been diagnosed with **Kidney Stones**, a common condition where hard deposits form in the kidneys. These stones can cause pain and blockages. Proper treatment is crucial to prevent complications.

Symptoms

- **Flank Pain:** A sharp, intense pain on one side of your back or lower abdomen, often worsening when you move.
- **Hematuria:** Noticeable blood in your urine, which can be alarming but isn't always an emergency unless accompanied by other symptoms.
- **Nausea:** May occur due to the pain or as a result of the stones moving.

Diagnosis

Kidney stones were identified as the cause of your symptoms. The presence of flank pain and hematuria, along with possible triggers like a low-fluid diet or dehydration, points to renal calculi. Dehydration can lead to stone formation due to concentrated urine.

Treatment Plan

- **Increase Fluid Intake:** Drink plenty of water to help pass stones and prevent future ones.
- **Pain Management:** Use over-the-counter pain relievers like Ibuprofen for relief.
- **Urology Follow-up:** Schedule an appointment for further evaluation and monitoring.

Medications

- **Ibuprofen:** Helps alleviate pain and inflammation. Brand names include Advil and Motrin.
- **Tamsulosin:** A muscle relaxant that facilitates stone passage. Brand names include Flomax and Urimax.

What to Do Now

This condition is urgent. **Go to a doctor or hospital immediately** if you experience severe pain, blood in urine, or other symptoms. Early treatment can prevent complications.

This report provides a clear, patient-friendly summary of your diagnosis and next steps. Please consult your healthcare provider for personalized advice.

8. Document Control

8.1 Approval

This manual requires approval by the thesis supervisor and documentation reviewer to ensure compliance with IEEE Std 1063-2001.

8.2 Revision History

Version	Date	Description	Author
1.0	2025-05-17	Initial draft	Naumenko Daria