ALCURA

DATA SET APPROVAL

ICBT CAMPUS

Prepared For :

BSC Final Project in SE Batch 30

Prepared By :

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Introduction

This document presents a dataset confirmation proposal for my final dissertation project in the Bachelor of Science in Software Engineering program at ICBT. The project focuses on building a model for website sing datasets of diseases. I have gathered data on approximately 12 diseases to train the model, and this document served the request verification that these datasets are valid and suitable for the project's demonstration phase. The following sections details each disease dataset, including description, symptoms, causes, and treatments, along with sample images used for model training and validation

Requesting Approval

My name is M.N.M. Dilshad, a final-year student pursuing a BSc (Hons) in Software Engineering at the ICBT Campus. I am writing to you today to formally present and request verification for the datasets that will form the foundational core of my dissertation project.

This project involves the creation of an intelligent web-based platform designed to demonstrate the application of machine learning in the medical field. It is crucial to emphasize that this system is strictly a prototype developed for academic demonstration purposes. It is intended to showcase the integration of software engineering and data science principles and is not intended for actual clinical diagnosis or medical decision-making.

To ensure the integrity, ethical compliance, and academic rigor of my work, I have meticulously sourced datasets for twelve (12) distinct diseases.

Disease Dataset

Here Are the each disease data set based on there description, symptoms, cause, side effects, treatment, medications, prevention, severity, risk Factors, Is Contagious, Common age Group, First Aid Advice, Source of Information and there Scientific names.

Here are the diseases based on These descriptions

- Eczema.
- Chickenpox
- Psoriasis.
- Ringworm.
- Rosacea.
- Impetigo.
- Cataract.
- Conjunctivitis.
- Stye.
- Herpes Simplex.
- Canker Sores.
- Nail Fungus.

I will mention each data with there sample images which I used to train my model.

The image are limited in the document.

Eczema

- Disease: Eczema.
- Description: A chronic inflammatory skin condition characterized by itchy, red, and dry skin.
- Symptoms: Itching, redness, dry skin, inflammation, rashes, cracked or scaly skin.
- Cause: 'Genetic and environmental factors; often linked to allergies or immune system dysfunction.
- Side Effects: Skin infections, sleep disturbances, thickened skin from scratching
- Treatment: Moisturizers, topical corticosteroids, antihistamines, immunosuppressants
- Medications: Hydrocortisone, Tacrolimus, Antihistamines, Dupilumab
- Prevention: Avoid known triggers, use gentle skin care products, keep skin moisturized
- Severity: Varies from mild to severe and chronic
- Risk Factors: Family history, allergies, asthma, environmental irritants
- Is Contagious: No.
- Common age Group: Infants, children, but can occur at any age
- Duration: Chronic (long-term); symptoms can flare up periodically
- First Aid Advice: Apply moisturizer, avoid scratching, use prescribed creams
- Source of Information: WHO, Mayo Clinic, American Academy of Dermatology
- Scientific Name: Atopic Dermatitis.

Images

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Validation Image

Chickenpox

- Disease: Chickenpox.
- Description: Contagious viral infection causing itchy rash and blisters
- Symptoms: Fever, fatigue, itchy rash with red spots and blisters
- Cause: Varicella-zoster virus
- Side Effects: Skin Infections, pneumonia, encephalitis
- Treatment: Antiviral medications, calamine lotion, antihistamines
- Medications: Acyclovir, calamine lotion, diphenhydramine
- Prevention: Varicella vaccine
- Severity: Moderate
- Risk Factors: Unvaccinated individuals
- Is Contagious: Yes
- Common Age Group: Children
- Duration: 1-2 weeks
- First Aid Advice: keep nails short, apply, soothing lotions, isolate
- Source of Information: CDC – Chickenpox
- Scientific Name: Varicella

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Psoriasis

- Disease: Psoriasis
- Description: Autoimmune condition using rapid skin cell buildup
- Symptoms: Scaly, red patches with silvery scales
- Cause: Autoimmune response
- Side Effects: Itching, burning, joint pain (psoriatic arthritis)
- Treatment: Topical creams, phototherapy, biologics.
- Medications: Corticosteroids, Methotrexate, Biologics (e.g. Adalimumab)
- Prevention: Stress reduction, skin care, avoid triggers
- Severity: Mild to debilitating
- Risk Factors: Family history, infection, stress
- Is Contagious: No
- Common Age Group: 15-35 years
- Duration: Lifelong with flare-ups
- First Aid Advice: Use moisturizers and anti-inflammatory creams
- Source of Information: National Psoriasis Foundation
- Scientific Name: Psoriasis vulgaris

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Ringworm

- Disease: Ringworm
- Description: Fungal infection forming circular red rashes
- Symptoms: Circular red rash, itching, scaly skin.
- Cause: Dermatophyte fungi.
- Side Effects: Skin cracks, secondary infection.
- Treatment: Antifungal creams or oral medication.
- Medications: Clotrimazole, Terbinafine, Griseofulvin
- Prevention: Good hygiene, avoid sharing personal items.
- Severity: Mild to Moderate
- Risk Factors: Damp environment, skin contact sports.
- Is Contagious: Yes
- Common Age Group: Children, athletes
- Duration: 2-4 weeks
- First Aid Advice: Apply antifungal, keep dry and clean.
- Source of Information: Cleveland Clinic – Ringworm
- Scientific Name: Tinea corporis

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Rosacea

- Disease: Rosacea
- Description: Chronic facial skin condition with redness and visible blood vessels.
- Symptoms: Redness, swelling, visible blood vessels, acne-like breakouts.
- Cause: Unknown; possibly immune, environmental, or vascular factors.
- Side Effects: Eye irritation, thickened skin.
- Treatment: Topical antibiotics, laser therapy.
- Medications: Metronidazole, Azelaic acid, Doxycycline
- Prevention: Avoid heat, spicy food, alcohol.
- Severity: Chronic but manageable.
- Risk Factors: Fair skin, family history.
- Is Contagious: No.
- Common Age Group: 30–50 years.
- Duration: 'Long-term.
- First Aid Advice: Avoid triggers, use gentle cleansers.
- Source of Information: National Rosacea Society
- Scientific Name: Rosacea

Images

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Impetigo

- Disease: Impetigo
- Description: Highly contagious bacterial skin infection.
- Symptoms: Red sores that burst and form honey-colored crust.
- Cause: Staph or Strep bacteria.
- Side Effects: Cellulitis, scarring.
- Treatment: Antibiotic cream or oral antibiotics.
- Medications: Mupirocin, Cephalexin, Amoxicillin
- Prevention: Hygiene, avoid sharing items.
- Severity: Mild to moderate.
- Risk Factors: Warm climates, young children.
- Is Contagious: Yes
- Common Age Group: Children (2–5 years).
- Duration: 7–10 days with treatment.
- First Aid Advice: Clean with mild soap, cover with gauze, avoid scratching.
- Source of Information: NHS – Impetigo
- Scientific Name: Impetigo contagious

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Cataract

- Disease: Cataract
- Description: Clouding of the lens in the eye leading to decreased vision
- Symptoms: Blurry vision, difficulty seeing at night, sensitivity to light, seeing halos around lights.
- Cause: Aging, diabetes, smoking, prolonged exposure to sunlight.
- Side Effects: Vision impairment, blindness if untreated.
- Treatment: Surgical removal of the clouded lens and replacement with an artificial lens.
- Medications: No medications can cure cataracts, but eye drops may help manage symptoms temporarily.
- Prevention: Wearing sunglasses, managing diabetes, avoiding smoking, regular eye exams.
- Severity: Progressive and can lead to blindness if untreated.
- Risk Factors: Age, UV exposure, smoking, diabetes, eye injury.
- Is Contagious: No
- Common Age Group: People over 50 years old.
- Duration: Progressive; worsens over months or years.
- First Aid Advice: Protect the eyes from further damage; seek an ophthalmologist.
- Source of Information: WHO, Mayo Clinic, WebMD
- Scientific Name: Cataracta

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Conjunctivitis

- Disease: Conjunctivitis
- Description: Inflammation of the conjunctiva (the membrane covering the white part of the eye).
- Symptoms: Redness, itching, tearing, discharge, gritty feeling in the eye.
- Cause: Viral or bacterial infection, allergies, irritants like smoke or chlorine.
- Side Effects: Discomfort, blurred vision, spread of infection.
- Treatment: Antibiotic or antiviral eye drops (for infections), antihistamines (for allergies).
- Medications: Tobramycin, Ciprofloxacin, Olopatadine.
- Prevention: Good hygiene, avoiding sharing towels or cosmetics, avoiding allergens.
- Severity: Usually mild but can be severe in some infections.
- Risk Factors: Close contact with infected individuals, allergies, poor hygiene.
- Is Contagious: Yes, if caused by bacteria or virus.
- Common Age Group: Children and adults in close-contact settings.
- Duration: 3–7 days (viral), up to 2 weeks (bacterial).
- First Aid Advice: Avoid touching the eyes, clean discharge, apply prescribed drops.
- Source of Information: CDC, American Academy of Ophthalmology.

Images

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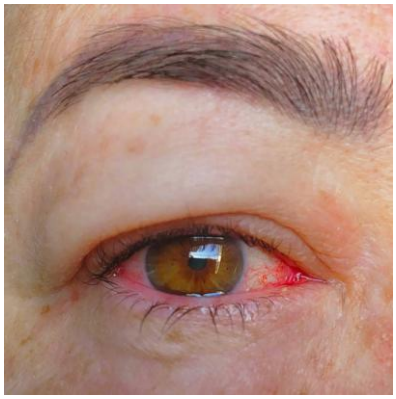

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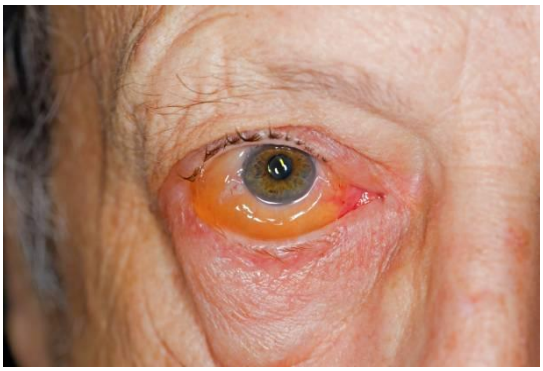

Stye

- Disease: Stye
- Description: A red, painful lump near the edge of the eyelid caused by a bacterial infection.
- Symptoms: Swelling, redness, pain, tenderness, tarriness.
- Cause: Bacterial infection (usually Staphylococcus) of oil glands in the eyelid.
- Side Effects: Temporary blurred vision, pain, discomfort.
- Treatment: Warm compresses, antibiotic ointments or drops if needed.
- Medications: Erythromycin ointment, warm saline solution.
- Prevention: Keep eyelids clean, avoid sharing cosmetics, replace old makeup.
- Severity: Mild, self-limiting in most cases.
- Risk Factors: Poor eyelid hygiene, rubbing eyes with dirty hands, use of old cosmetics.
- Is Contagious: No, but the bacteria causing it can spread.
- Common Age Group: All age groups, more common in teenagers and adults.
- Duration: 3–7 days typically
- First Aid Advice: Apply warm compresses for 10-15 minutes several times a day.
- Source of Information: Mayo Clinic, NH
- Scientific Name: Hordeolum

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Herpes Simplex

- Disease: Herpes Simplex
- Description: An eye infection caused by the herpes simplex virus (HSV), affecting the cornea.
- Symptoms: Eye redness, pain, blurred vision, watery discharge, sensitivity to light.
- Cause: Herpes Simplex Virus Type 1 (HSV-1), usually from a cold sore virus.
- Side Effects: Corneal scarring, vision loss, recurrent infections.
- Treatment: Antiviral eye drops or oral medications.
- Medications: Acyclovir, Trifluridine drops.
- Prevention: Avoid touching the eyes after touching cold sores, proper hygiene.
- Severity: Can be serious and lead to blindness if untreated.
- Risk Factors: Previous HSV infection, immunosuppression.
- Is Contagious: Yes, HSV is contagious.
- Common Age Group: Young adults to middle-aged individuals.
- Duration: 7–14 days (initial), can recur.
- First Aid Advice: Avoid touching the infected eye, seek medical treatment immediately.
- Source of Information: American Academy of Ophthalmology, CDC
- Scientific Name: Herpetic Keratoconjunctivitis

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Cancer Sores

- Disease: Cancer Sores
- Description: Small, shallow ulcers that develop on the soft tissues inside the mouth or at the base of the gums.
- Symptoms: Painful sores inside the mouth, tingling or burning sensation before the sores appear, difficulty eating or talking
- Cause: Minor injury to the mouth, stress, acidic or spicy foods, vitamin deficiencies (B12, iron), hormonal changes
- Side Effects: Pain, discomfort while eating or speaking, possible secondary infection if severe
- Treatment: Topical pastes, mouth rinses, pain relievers, avoiding trigger foods
- Medications: Benzocaine, Fluocinonide, Hydrogen peroxide rinses
- Prevention: Avoid trigger foods, maintain good oral hygiene, reduce stress, use soft-bristled toothbrushes
- Severity: Usually mild and self-limiting
- Risk Factors: Family history, stress, dietary deficiencies, certain food sensitivities
- Is Contagious: No
- Common Age Group: Teens and young adults, but can occur at any age
- Duration: '7–14 days without treatment
- First Aid Advice: Rinse mouth with salt water or baking soda, apply topical pain relievers, avoid spicy or acidic foods

- Source of Information: Mayo Clinic, WebMD, American Dental Association

- Scientific Name: Aphthous Stomatitis or Recurrent Aphthous Ulcers (RAU).

Images

Training

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Nail fungus

- Disease: Nail Fungus
- Description: A fungal infection that affects the fingernails or toenails, often causing discoloration, thickening, and crumbling.
- Symptoms: Discolored nails, thickened nails, brittle or crumbly nails, distorted nail shape, foul smell
- Cause: Fungal organisms (mainly dermatophytes), moist environments, poor foot hygiene
- Side Effects: Pain, permanent nail damage, spread of infection to other nails or skin
- Treatment: Antifungal medications, topical treatments, nail removal in severe cases
- Medications: Terbinafine, Itraconazole, Ciclopirox, Efinaconazole
- Prevention: Keep feet dry and clean, avoid walking barefoot in communal showers, wear breathable footwear, don’t share nail clippers
- Severity: 'Mild to moderate, can become chronic if untreated
- Risk Factors: Age, sweating heavily, working in humid environments, wearing tight shoes, compromised immunity
- Is Contagious: Yes, through direct contact or shared surfaces
- Common Age Group: Adults, especially older adults
- Duration: Several months; full treatment can take up to 12 months
- First Aid Advice: Keep affected nails dry and trimmed, apply antifungal cream, avoid spreading infection
- Source of Information: CDC, Mayo Clinic, American Academy of Dermatology
- Scientific Name: Onychomycosis

Images

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Validation

Doctor Verification Signature

I confirm that all data for this project will be sourced from public, anoymized, interviewing and ethically sourced repositories. Private patients data will be used for demosntration purpose only to access

The models will be trained on datasets related to the following 12 diseases only for demonstration

- Canker Sores
- Cataract
- Chickenpox
- Conductivities
- Eczema
- Herpes Simplex
- Impetigo
- Nail Fungus
- Psoriasis
- Ringworm
- Rosacea
- Stye

The images used are only for demonstration purposes downloaded from valid resources

Dr.Chaluka Perera , hereby acknowledges that I have been informed about the nature of the above academic by Mr. M.N.M.Dilshad. The images and the details are valid, real time with high accuracy information gathering.

- I verify that the listed diseases are appropriate for software demonstration project of this scope
- I confirm that the described disease, use of public, anonymized datasets for a non-clinical, demonstration only prototype is ethically sound and valid for its intended academic purpose

Signature: .....

Name: Dr . Chaluka Perera (MBBS,MCGP (SL.), MRCGP (International))

Medical Council Registration No: 31060

Date: ....2025/8/28....

Dr. CHALUKA JAYATISSA
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Conclusion

This final dissertation project, successfully demonstrates the practical integration of software engineering principles with machine learning to address complex, real-world domain. The primary objective was to design, develop, and evaluate functional prototype web platform capable of demonstrating predictive analysis for 12 distinct based on user inputted data.

The project culminated in the creation of a fully operational system that seamlessly integrates user friendly front-end with powerful, model-driven-back-end. Key achievements include the successful sourcing and preprocessing of diverse medical datasets, the training and validation of multiple machine learning models, and the deployment of these models within a secure and scalable web architecture. The platform stands as testament to potential of technology as supportive tool in the medical field, showcasing capabilities in data handling, predictive analytics, and intuitive result presentation.

However, it is imperative to conclude with a definitive and unequivocal declaration. **This platform is, and always has been, strictly a prototype developed for academic demonstration purpose only.** it was created so solely to fulfill the requirements of the BSC (Hons) in Software Engineering degree at ICBT Campus. The models are trained on limited, public datasets and lack the rigorous validation, depth of data, and clinical testing required for real world applications

Therefore, this system is absolutely not intended for actual clinical diagnosis, medical decision-making or patient treatment under an circumstances. Its value lies not as medical device, bus as an academic exercise that showcases the software development lifecycle, from conceptualization to deployment, and highlights both the possibilities and the significant responsibilities inherent in applying technology to sensitive fields like healthcare.

This project provided invaluable experience in full-stack development, machine learning integration, and ethical considerations in technology. It opens avenues for future work, including the incorporation of more advanced AI models, expansion to include more conditions, and the implementation of sophisticated data security-measures always within the critical framework of ethical research and clear disclaimers of use.