BCSE203E – Web Programming Lab

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PROJECT REVIEW - 1

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Breast Cancer Awareness

Introduction:

Breast cancer is one of the most common cancers affecting women worldwide. It occurs when cells in the breast grow uncontrollably, forming a tumor. Awareness about early detection, treatment options, and preventive measures is crucial in reducing mortality rates.

What is Breast Cancer?

Breast cancer begins when cells in the breast start to grow abnormally. These cells may form a lump, invade surrounding tissues, or spread to other parts of the body.

Types of Breast Cancer

1. **Ductal Carcinoma in Situ (DCIS)** – Non-invasive cancer where cells are confined to ducts.
2. **Invasive Ductal Carcinoma (IDC)** – Cancer spreads beyond ducts into breast tissue.
3. **Lobular Carcinoma in Situ (LCIS)** – Non-invasive cancer in the milk-producing lobules.
4. **Triple-Negative Breast Cancer (TNBC)** – Lacks estrogen, progesterone, and HER2 receptors, making treatment difficult.
5. **Inflammatory Breast Cancer (IBC)** – Rare but aggressive type causing redness and swelling.

Causes and Risk Factors

- **Genetic Factors** – BRCA1 & BRCA2 mutations increase risk.
- **Hormonal Factors** – Estrogen levels play a role in cancer development.
- **Lifestyle Factors** – Smoking, alcohol, obesity, and lack of physical activity contribute to higher risk.
- **Age & Gender** – Older women are more susceptible.
- **Family History** – A close relative with breast cancer increases risk.

Signs and Symptoms

- A lump in the breast or underarm.
- Change in breast size or shape.
- Unusual nipple discharge.
- Redness, swelling, or dimpling of breast skin.
- Inverted or painful nipples.

Diagnosis of Breast Cancer

1. **Self-Examination** – Regularly checking for lumps and abnormalities.
2. **Mammography** – X-ray imaging to detect tumors early.
3. **Ultrasound & MRI** – Helps identify suspicious growths.
4. **Biopsy** – A sample of breast tissue is tested for cancer cells.
5. **Genetic Testing** – BRCA gene screening for high-risk individuals.

Stages of Breast Cancer

- **Stage 0** – Non-invasive, cancerous cells are localized.
- **Stage I** – Tumor is small and hasn’t spread.
- **Stage II** – Tumor is growing but still confined to the breast.
- **Stage III** – Cancer spreads to nearby lymph nodes.
- **Stage IV** – Cancer has spread to distant organs.

Treatment Options

1. Surgery

- **Lumpectomy** – Removal of tumor while preserving breast tissue.
- **Mastectomy** – Complete removal of one or both breasts.

2. Radiation Therapy

High-energy rays destroy cancer cells post-surgery.

3. Chemotherapy

Drugs kill rapidly growing cancer cells, used before or after surgery.

4. Hormone Therapy

Blocks hormone receptors to slow cancer growth.

5. Targeted Therapy

Focuses on specific proteins, such as HER2-positive breast cancer treatment.

Prevention and Early Detection

- Maintain a **healthy diet** and exercise regularly.
- Limit **alcohol** and avoid **smoking**.
- Breastfeed, if possible, as it lowers risk.
- Schedule regular **mammograms** for early detection.
- Be aware of **family history** and opt for genetic screening if needed.

Myths and Facts About Breast Cancer

- **Myth:** Only women get breast cancer.
  Fact: Men can develop breast cancer too, though rare.
- **Myth:** Wearing a bra causes cancer.
  Fact: No scientific evidence supports this claim.
- **Myth:** If no one in my family has breast cancer, I won't get it.
  Fact: Most cases occur in women with no family history.
- **Myth:** Breast cancer always forms a lump.
  Fact: Some types do not form lumps but still spread.

Breast Cancer Awareness Campaigns

Several organizations work globally to spread awareness:

- **Pink Ribbon Movement** – Symbol of breast cancer awareness.
- **Breast Cancer Awareness Month (October)** – Campaigns promote screening and early detection.
- **Walkathons & Fundraising Events** – Encourage research funding and support for patients.

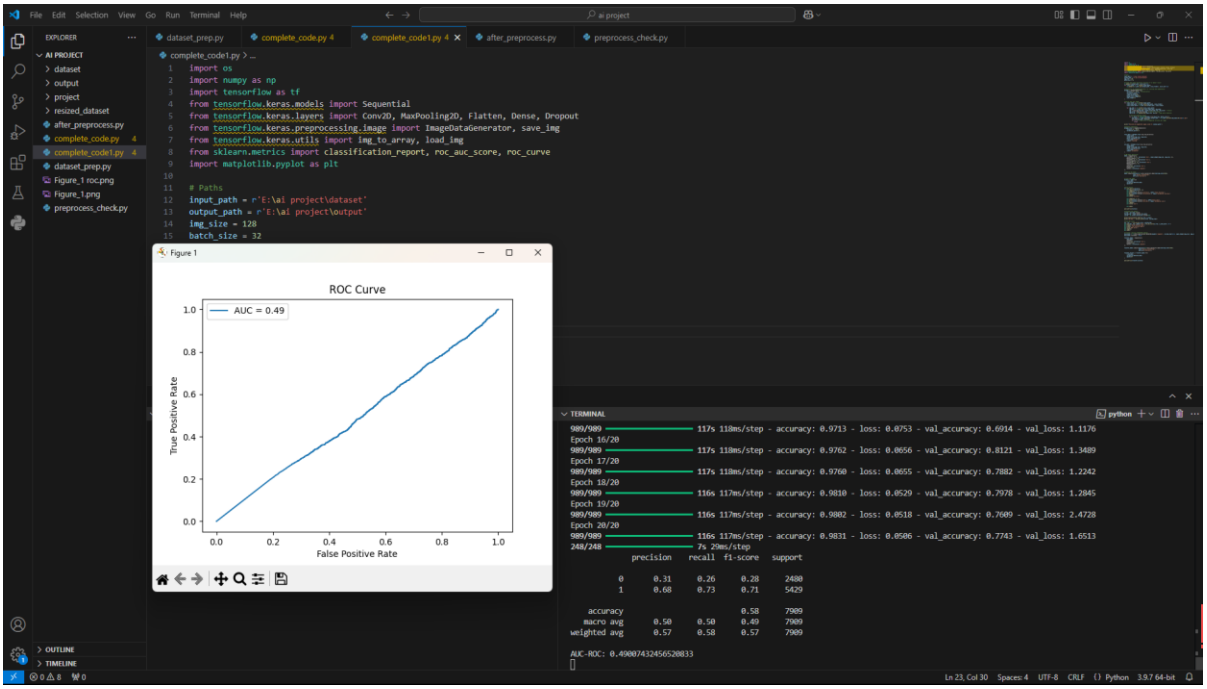
Website Overview

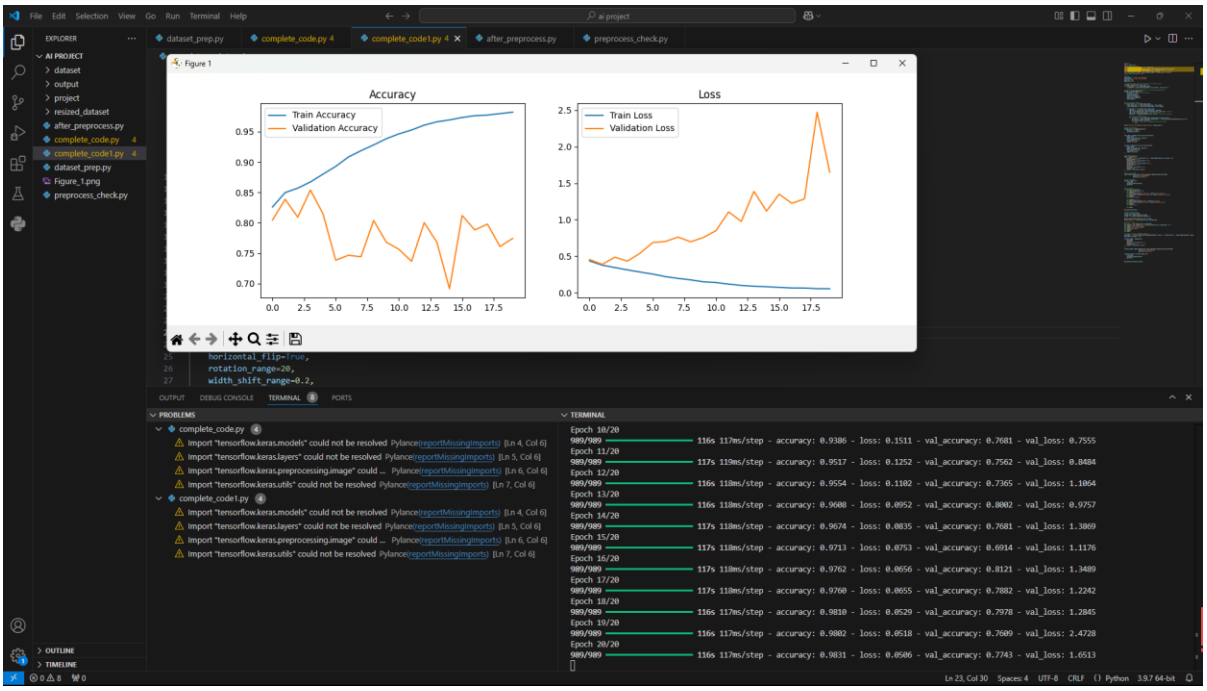
- Features of the website:
  - Home, About, Detection, Statistics, Contact pages.
  - Informative sections with images and videos.
  - Interactive design for easy navigation.

AI-Based Cancer Detection

- AI model for image-based breast cancer detection.
- Predicting if a tumor is **malignant or benign**.

- Benefits of AI in healthcare.





Chatbot for Doctor Consultation

- AI-powered chatbot for real-time doctor assistance.
- Helps users get instant medical advice.
- Enhances accessibility to healthcare services.

Challenges Faced

- Gathering reliable medical data.
- Implementing AI with accurate predictions.
- Ensuring user-friendly interface and accessibility.

Future Scope

- Enhancing AI detection accuracy.
- Expanding chatbot features for better interaction.
- Adding more disease detection features.
- Implementing multilingual support for wider reach.

Conclusion

Breast cancer awareness is vital for early detection, proper treatment, and reducing mortality rates. Regular screenings, healthy lifestyle choices, and education about the disease can make a significant difference in fighting breast cancer.