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Completed the project named as Phase_IV_

TECHNOLOGY PROJECT NAME :CHAT APPLICATION UI

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CHAT APPLICATION UI- PHASE IV

1. Additional Features

- Identify pending or “nice-to-have” features from earlier phases.
- Example:
  - Search and filter options
  - User profile customization
  - Notifications or alerts
  - Export/download data functionality
  - Role-based access control

2. UI/UX Improvements

- Refine the user interface for better usability.
- Example tasks:
  - Improve responsiveness across devices.
  - Enhance navigation (menus, breadcrumbs, quick actions).
  - Add animations, tooltips, or micro-interactions.
  - Follow accessibility standards (contrast, alt-text, ARIA roles).

3. API Enhancements

- Optimize existing APIs for better reliability and speed.
- Example:
  - Add pagination, filtering, and sorting to APIs.
  - Strengthen error handling and validation.
  - Improve API documentation (Swagger/Postman).
  - Secure APIs with authentication (JWT/OAuth).

4. Performance & Security Checks

- **Performance Testing:**
  - Optimize queries and database operations.
  - Use caching (Redis, browser cache, CDN).
  - Reduce bundle size and loading time.
- **Security Testing:**
  - Input sanitization to prevent SQL injection/XSS.
  - HTTPS and secure cookies.

    - Role-based access permissions.
    - Vulnerability scanning tools.

5. Testing of Enhancements

- Unit testing of new features.
- Integration and regression testing.
- User Acceptance Testing (UAT).
- Automated testing (if possible).

6. Deployment

- Choose hosting platform:
    - **Netlify** → Best for frontend React/Vue apps.
    - **Vercel** → Great for Next.js/React with CI/CD.
    - **Cloud Platforms (AWS/GCP/Azure)** → For full-stack apps.
- Set up CI/CD pipelines for automated deployment.
- Configure environment variables securely.
- Monitor logs and performance after deployment.

Code On Chat Application UI

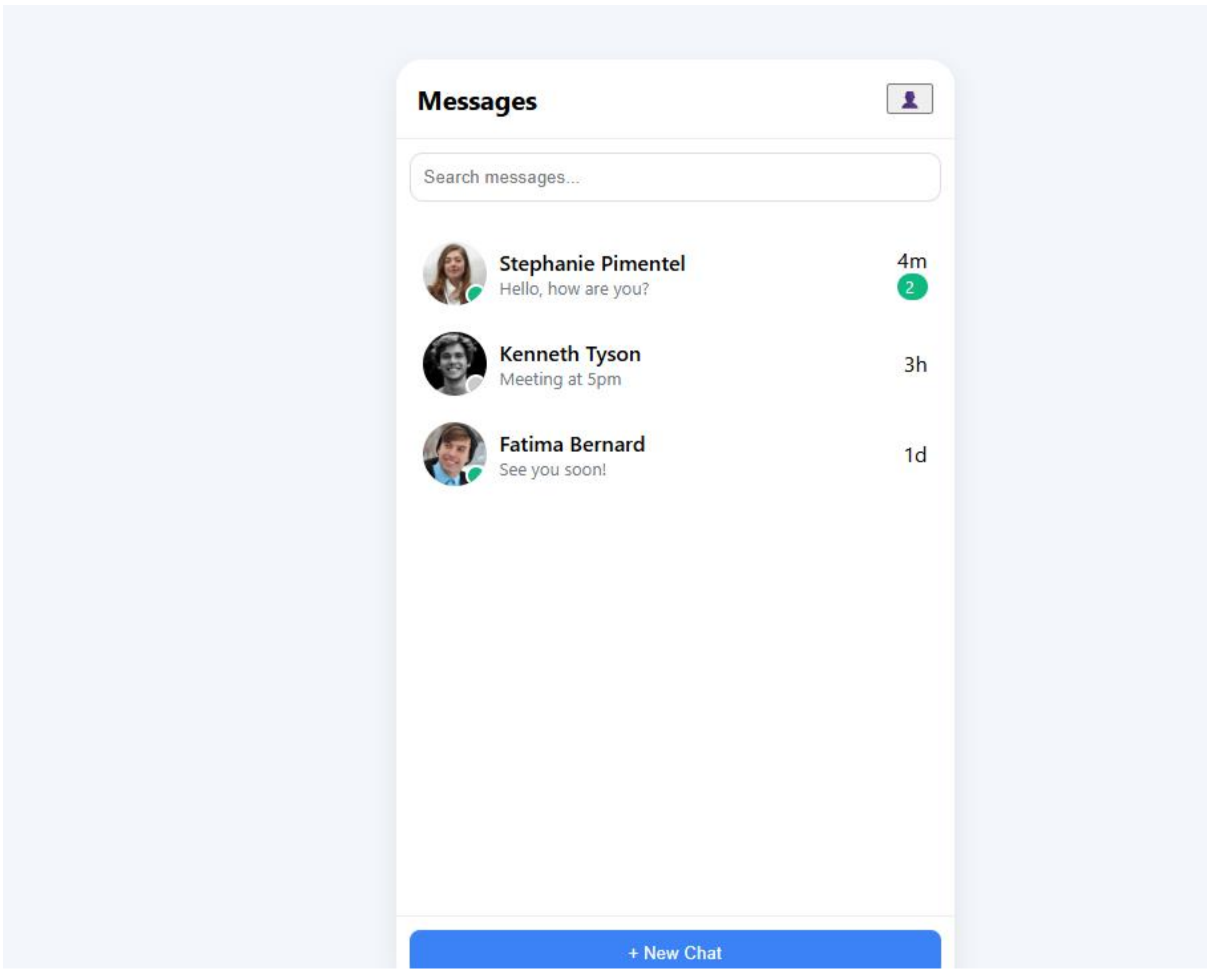
```
<!doctype html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width,initial-scale=1">
<title>WhatsApp-Style Chat App</title>
<style>
:root{
  --bg:#f3f6fb; --card:#ffffff; --muted:#6b7280; --accent:#3b82f6;
  --soft:#f1f5f9; --shadow:0 6px 18px rgba(15,23,42,0.08);
  font-family:Inter,ui-sans-serif,system-ui,"Segoe UI",Roboto,Arial;
}
body{margin:0;min-height:100vh;background:var(--bg);display:flex;align-items:center;justify-
content:center;padding:20px}
.app{width:100%;max-width:420px;min-height:700px;background:var(--card);border-radius:20px;box-shadow:var(--
shadow);overflow:hidden;display:flex;flex-direction:column}
header{padding:16px;display:flex;align-items:center;justify-content:space-between;border-bottom:1px solid #eee}
header h2{margin:0;font-size:20px}
button{cursor:pointer}
.screen{flex:1;display:none;flex-direction:column}
```

```
.screen.active{display:flex}
.list{flex:1;overflow:auto;padding:10px}
.chat-item{display:flex;gap:10px;padding:10px;border-radius:12px;cursor:pointer;align-items:center}
.chat-item:hover{background:var(--soft)}
.avatar{width:48px;height:48px;border-radius:50%;overflow:hidden;position:relative}
.avatar img{width:100%;height:100%;object-fit:cover}
.online-status{width:12px;height:12px;border-radius:50%;position:absolute;bottom:0;right:0;border:2px solid #fff;}
.online-status.online{background:#10b981}
.online-status.offline{background:#ccc}
.meta{flex:1;min-width:0}
.meta .name{font-weight:600}
.meta .msg{font-size:13px;color:var(--muted);white-space:nowrap;overflow:hidden;text-overflow:ellipsis}
.meta .time{font-size:12px;color:var(--muted)}
.unread{background:#10b981;color:white;border-radius:999px;padding:2px 6px;font-size:12px}
input[type=text],input[type=search]{padding:10px;border-radius:10px;border:1px solid #ddd;width:100%}
footer{padding:10px;border-top:1px solid #eee;display:flex;gap:10px;align-items:center}
footer input{flex:1}
footer button{background:var(--accent);color:white;border:none;padding:10px 14px;border-radius:8px}
.message-list{flex:1;overflow:auto;padding:10px;display:flex;flex-direction:column;gap:8px;position:relative}
.bubble{max-width:70%;padding:10px 14px;border-radius:14px;position:relative;word-break:break-word;}
.bubble.me{align-self:flex-end;background:var(--accent);color:white;border-bottom-right-radius:4px}
.bubble.them{align-self:flex-start;background:var(--soft);color:#111;border-bottom-left-radius:4px}
.menu a{display:block;padding:14px;border-bottom:1px solid #eee;text-decoration:none;color:#111}
.menu a:hover{background:var(--soft)}
.center{flex:1;display:flex;align-items:center;justify-content:center;flex-direction:column;color:var(--muted)}
.reply-text{font-size:12px;color:#555;border-left:2px solid #ccc;padding-left:6px;margin-bottom:4px}
.status-icon{font-size:12px;margin-left:5px;}
.emoji-picker{display:flex;flex-wrap:wrap;gap:5px;padding:5px;background:#eee;border-radius:10px;max-
height:120px;overflow:auto;margin-top:5px;}
.emoji-picker span{cursor:pointer;font-size:20px;}
.typing-indicator{font-size:12px;color:#555;padding:4px;margin-left:10px;}
</style>
</head>
<body>
<div class="app">

  <!-- Inbox -->
  <div id="inbox" class="screen active">
    <header>
      <h2>Messages</h2>

      <button onclick="showScreen('profile')">        </button>
    </header>
    <div style="padding:10px"><input type="search" id="search" placeholder="Search messages..."></div>
    <div class="list" id="chatList"></div>
    <footer><button style="flex:1" onclick="showScreen('compose')">+ New Chat</button></footer>
  </div>

  <!-- Chat Conversation -->
  <div id="chat" class="screen">
    <header>
```

```
      <button onclick="showScreen('inbox')">⬅</button>
      <h2 id="chatTitle">Chat</h2>
      <span id="typingIndicator" class="typing-indicator" style="display:none;">typing...</span>
    </header>
    <div class="message-list" id="messages"></div>
    <footer>
      <button onclick="toggleEmojiPicker()">😊</button>
      <input type="text" id="msgInput" placeholder="Type a message...">
      <button onclick="sendMessage()">Send</button>
    </footer>
    <div class="emoji-picker" id="emojiPicker" style="display:none;"></div>
  </div>

</div>

<script>
// Chat data
const chats = [
  {id:1,name:"Stephanie Pimentel",msg:"Hello, how are
you?",avatar:"https://i.pravatar.cc/150?img=32",time:"4m",unread:2, online:true, messages:[]},
  {id:2,name:"Kenneth Tyson",msg:"Meeting at 5pm",avatar:"https://i.pravatar.cc/150?img=12",time:"3h",unread:0,
online:false, messages:[]},
  {id:3,name:"Fatima Bernard",msg:"See you soon!",avatar:"https://i.pravatar.cc/150?img=8",time:"1d",unread:0,
online:true, messages:[]}
];

let currentChat = null;
const emojiList = ["😀","😂","😍","😎","😭","😡","👍","🙏","🔥","💯","🎉","❤️"];
const typingIndicator = document.getElementById('typingIndicator');

function showScreen(id){
  document.querySelectorAll('.screen').forEach(s=>s.classList.remove('active'));
  document.getElementById(id).classList.add('active');
  if(id==="inbox") renderChats();
  if(id==="chat" && currentChat) renderMessages();
}

// Render chat list
function renderChats(){
  const list=document.getElementById('chatList');
  list.innerHTML="";
  chats.forEach(c=>{
    const div=document.createElement('div');
    div.className="chat-item";
    div.innerHTML=`
      <div class="avatar">
        <img src="${c.avatar}">
        <div class="online-status ${c.online ? 'online':'offline'}"></div>
      </div>
      <div class="meta">
        <div class="name">${c.name}</div>
        <div class="msg">${c.msg}</div>
      </div>
      <div>
        <div class="time">${c.time}</div>
        ${c.unread?`<div class="unread">${c.unread}</div>`:""}
      </div>
    `;
    div.onclick=()=>openChat(c);
    list.appendChild(div);
  });
}

// Open chat
function openChat(chat){
  currentChat = chat;
  document.getElementById('chatTitle').textContent = chat.name;
  showScreen('chat');
  renderMessages();
}

// Render messages
function renderMessages(){
  const container = document.getElementById('messages');
  container.innerHTML = "";
  currentChat.messages.forEach(msg => addMessage(msg.text, msg.who, msg.status, msg.replyTo, false));
  container.scrollTop = container.scrollHeight;
}

// Add message
function addMessage(text, who, status="sent", replyTo=null, store=true){
  const container = document.getElementById('messages');
  const div = document.createElement('div');
  div.className = "bubble " + who;
  if(replyTo){
    const replyDiv = document.createElement('div');
    replyDiv.className = "reply-text";
    replyDiv.textContent = "Replying to: " + replyTo;
    div.appendChild(replyDiv);
  }
  div.appendChild(document.createTextNode(text));

  if(who==="me"){
    const statusSpan = document.createElement('span');
    statusSpan.className="status-icon";
    statusSpan.textContent = statusIcon(status);
    div.appendChild(statusSpan);
  }

  container.appendChild(div);
  container.scrollTop = container.scrollHeight;
  if(store) currentChat.messages.push({text, who, status, replyTo});
}

// Status icons
function statusIcon(status){
  switch(status){
    case "sent": return "✅";
    case "delivered": return "✅✅";
    case "seen": return "👁️";
    default: return "";
  }
}

// Send message
function sendMessage(){
  const input=document.getElementById('msgInput');
  if(input.value.trim()!==""){
    const replyTo = input.dataset.replyTo || null;
    addMessage(input.value,'me','sent',replyTo);
    input.value = "";
    input.placeholder = "Type a message...";
    input.dataset.replyTo = "";
    // simulate delivery & seen after scrolling to bottom
    setTimeout(()=>updateLastMessageStatus('delivered'), 1000);
    setTimeout(()=>updateLastMessageStatus('seen'), 3000);
    simulateTyping();
  }
}

// Update last message status
function updateLastMessageStatus(newStatus){
  const msgs = currentChat.messages;
  if(msgs.length>0){
    msgs[msgs.length-1].status = newStatus;
    renderMessages();
  }
}

// Reply on message click
document.getElementById('messages').addEventListener('click', e=>{
  if(e.target.classList.contains('bubble')){
    const text = e.target.textContent.replace(/✅|👁️/g,'').trim();
    document.getElementById('msgInput').placeholder = "Replying to: " + text;
    document.getElementById('msgInput').dataset.replyTo = text;
  }
});
```

```
// Emoji picker
function toggleEmojiPicker(){
  const picker = document.getElementById('emojiPicker');
  picker.style.display = picker.style.display==='none' ? 'flex' : 'none';
  if(picker.style.display==='flex') renderEmojiPicker();
}

function renderEmojiPicker(){
  const picker = document.getElementById('emojiPicker');
  picker.innerHTML = "";
  emojiList.forEach(e=>{
    const span = document.createElement('span');
    span.textContent = e;
    span.onclick = ()=>{
      const input = document.getElementById('msgInput');
      input.value += e;
      input.focus();
    };
    picker.appendChild(span);
  });
}

// Simulate typing indicator
function simulateTyping(){
  typingIndicator.style.display = "inline";
  setTimeout(()=>{
    typingIndicator.style.display = "none";
    // simulate incoming reply
    addMessage("Hello! 👋",'them','seen');
  }, 2000);
}

// Initialize
renderChats();
</script>
</body>
</html>
```

Output



Messages

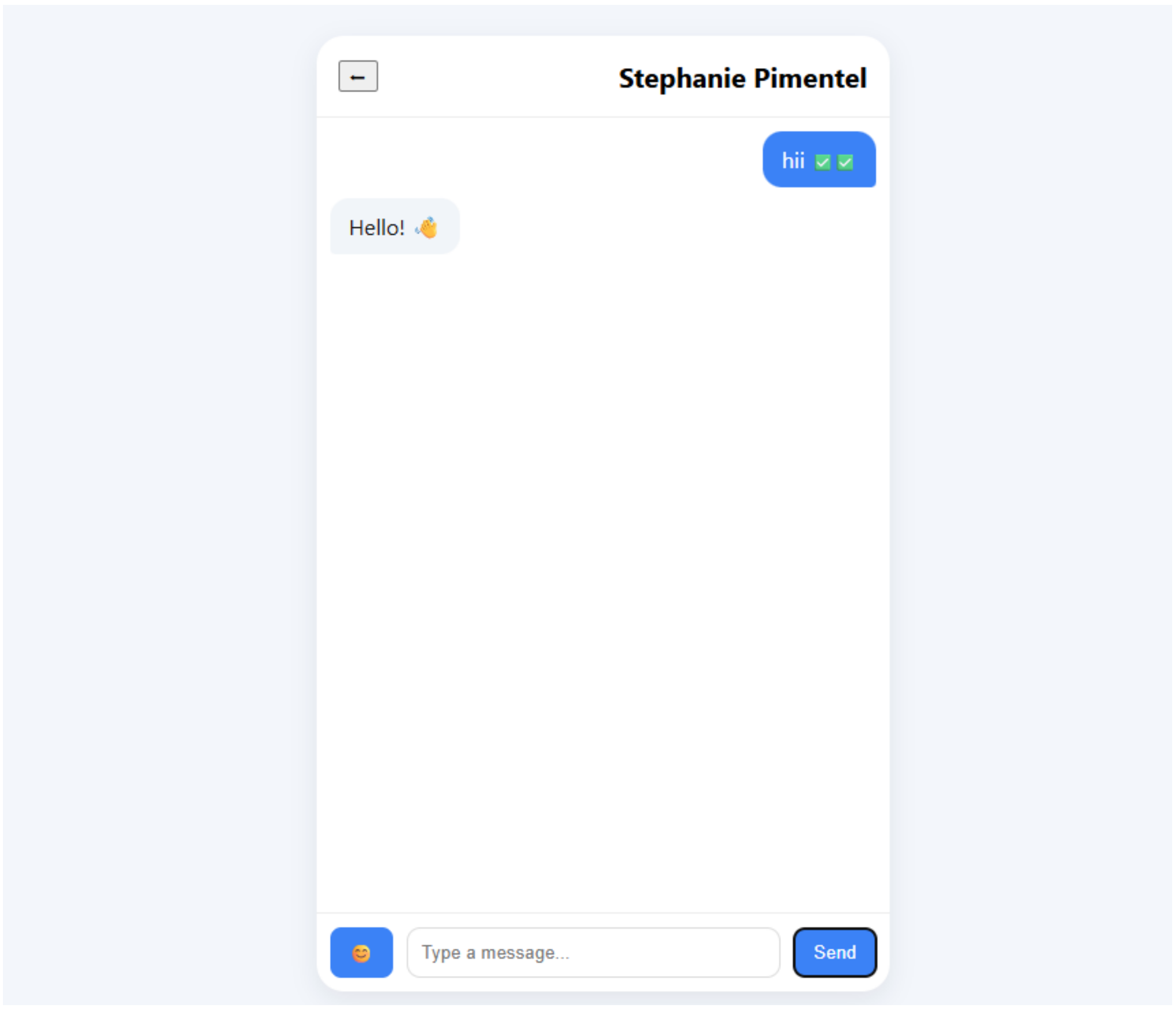
Search messages...

Stephanie Pimentel
Hello, how are you?
4m
2

Kenneth Tyson
Meeting at 5pm
3h

Fatima Bernard
See you soon!
1d

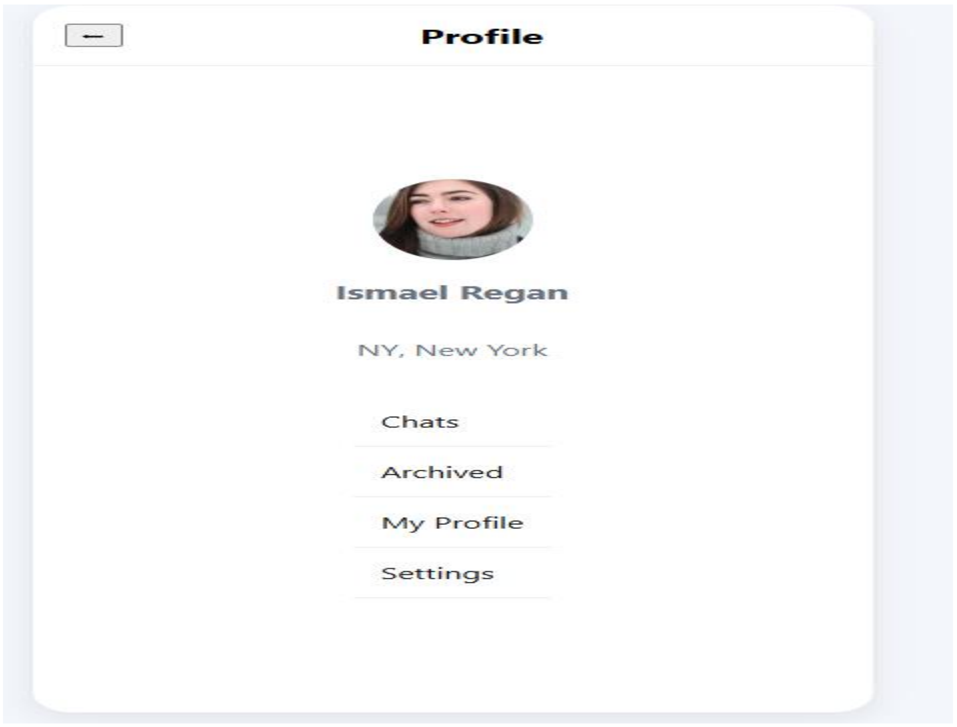
+ New Chat



Stephanie Pimentel

hii ✅✅

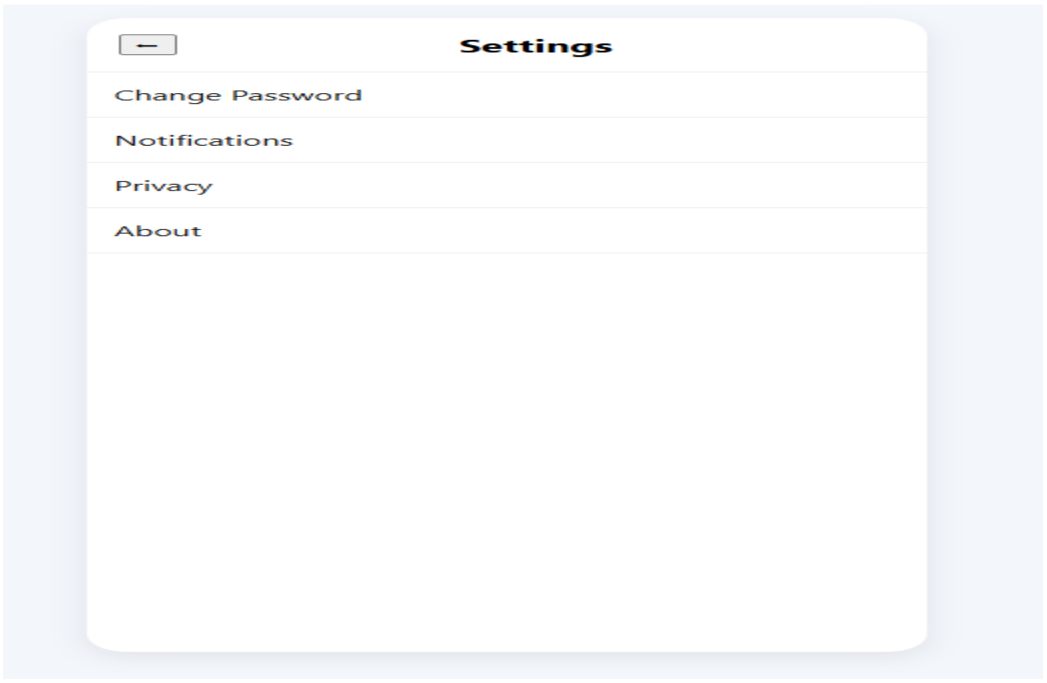
Hello! 👋



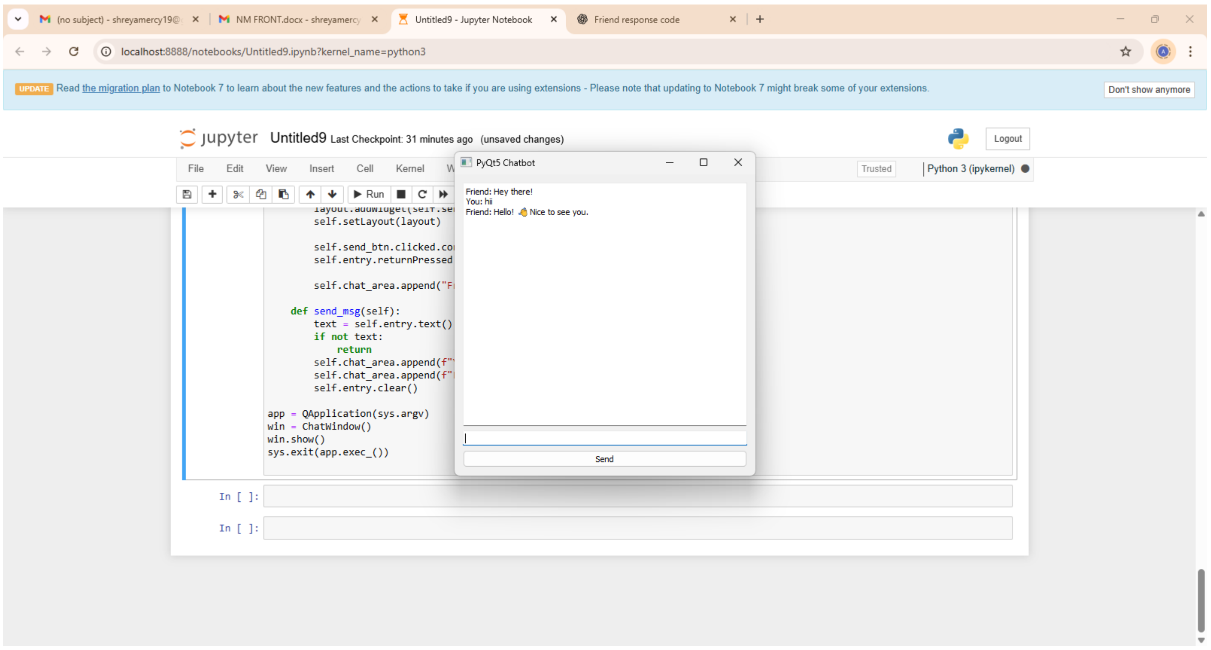
Profile

Ismael Regan

NY, New York

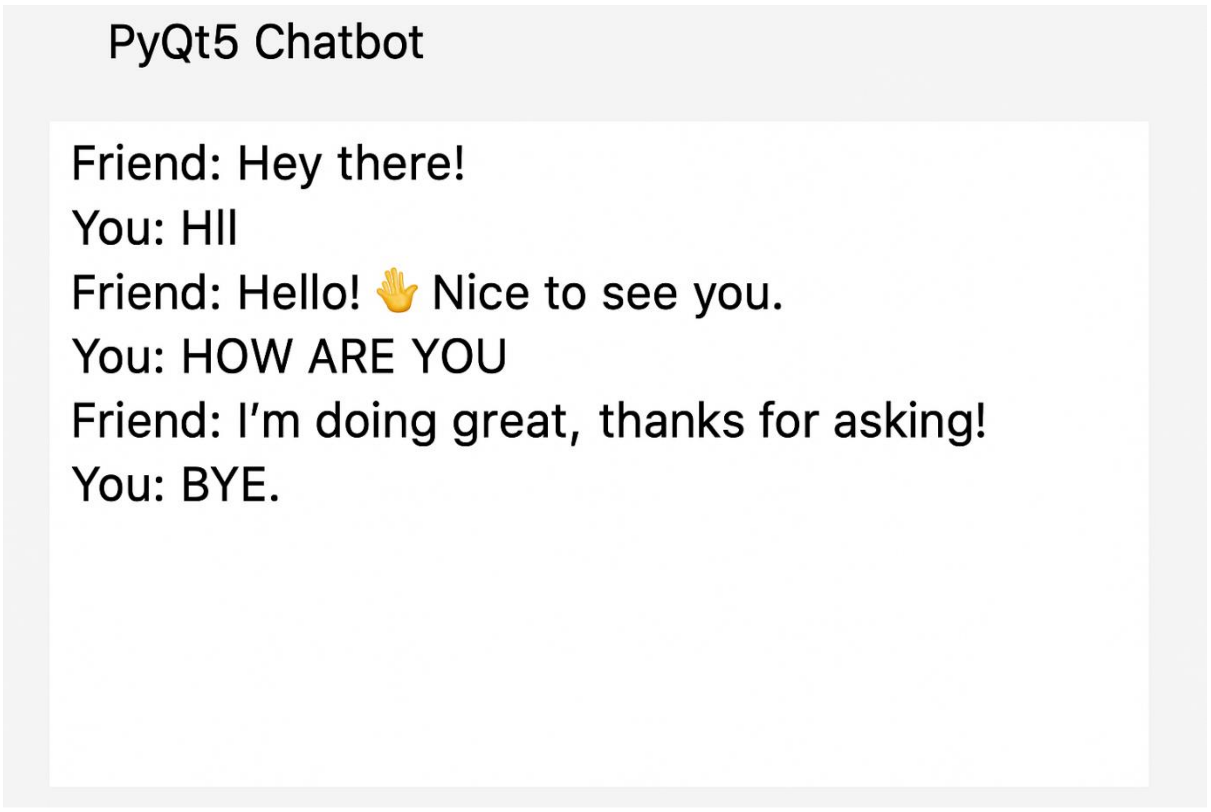


Output of Chat Application UI


localhost:8888/notebooks/Untitled9.ipynb?kernel_name=python3
jupyter Untitled9 Last Checkpoint: 31 minutes ago (unsaved changes)
File Edit View Insert Cell Kernel
Run
Trusted
Python 3 (ipykernel)
Logout
PyQt5 Chatbot
Send

```
            layout.addWidget(self.se
            self.setLayout(layout)

            self.send_btn.clicked.co
            self.entry.returnPressed

            self.chat_area.append("F

        def send_msg(self):
            text = self.entry.text()
            if not text:
                return
            self.chat_area.append(f"
            self.chat_area.append(f"
            self.entry.clear()

app = QApplication(sys.argv)
win = ChatWindow()
win.show()
sys.exit(app.exec_())
```

```
Friend: Hey there!
You: hii
Friend: Hello! 👋 Nice to see you.
```



```
Friend: Hey there!
You: HII
Friend: Hello! 👋 Nice to see you.
You: HOW ARE YOU
Friend: I'm doing great, thanks for asking!
You: BYE.
```

Github Link: https://github.com/sm1874/nm-project/blob/main/nm.html
https://github.com/sm1874/nm-phases-of-the-projects