

Project References and Appendices

Date	8th July 2024
Team ID	SWTID1720074725
Project Name	CodeXchange: An AI-Powered Code Translator Tool

Appendices

Code Listings:-

requirements.txt

```
1 #libraries to be installed
2 streamlit==1.10.0
3 google-generativeai
4 altair==4.0
5 python-dotenv
```

app.py

```
1 import streamlit as st
2 import google.generativeai as palm
3 from dotenv import load_dotenv
4 import os,sys
5 from google.api_core.exceptions import DeadlineExceeded
6
7 #Load the .env file
8 load_dotenv()
9
10 # Access the API key
```

```
11 gemini_api_key = os.getenv('GEMINI_API_KEY')
12
13 # Configure the API key
14 palm.configure(api_key=gemini_api_key)
15
16 # Define the model to use
17 model_name = "models/chat-bison-001"
18 languages = ["Python", "Java", "C++"]
19
20
21 # Function to translate code from one language to another
22 def translate_code(code_snippet, target_language):
23     instruction = "Give Fully runnable code. Include syntax highlighting. Give only the translated code"
24     prompt = f"Translate the following code to {target_language}:\n\n{code_snippet}"
25     try:
26         response = palm.chat(
27             model=model_name,
28             messages=[instruction,prompt]
29         )
30     except DeadlineExceeded:
31         print("Timeout. Please Try again")
32         exit()
33     return response.candidates[0]["content"]
34
35 def commandLine(targetLanguage):
36     inputFileName = outputFileName = ""
37     if len(sys.argv) < 4:
38         outputFileName = "converted.txt"
39     else:
40         outputFileName = sys.argv[3]
41         inputFileName = sys.argv[2]
42         code = ""
43         with open(inputFileName,"r") as inputFile:
44             code = inputFile.read()
45
46         with open(outputFileName,"w") as outputFile:
47             print("\rConverting...")
48             translated_code = translate_code(code,targetLanguage)
49             print("\rConverted...")
50             print("\rSaving...")
51             outputFile.write(translated_code)
52             print("\rOutput Saved...\n\n")
53             print(f"{targetLanguage.title()} Code:")
54             print(translated_code)
55
56 # Streamlit application
```

```
57 def main():
58
59     st.title("CodeXchange: Ai-Powered Code Translation Tool")
60     st.write("""
61         <link rel="stylesheet"
62         href="https://fonts.googleapis.com/css2?family=Material+Symbols+Outlined:opsz,w
63         ght,FILL,GRAD@24,400,0,0" />
64         """,unsafe_allow_html=True)
65     st.markdown(
66         """
67         <style>
68
69         .main .block-container {
70             max-width: 1000px;
71             padding: 1rem;
72         }
73
74         .stSelectbox{
75             max-width: 25%
76         }
77
78         .use-case-container{
79             min-height: 20vh;
80             display: flex;
81             justify-content: space-evenly;
82             font-family: "Source Sans Pro", sans-serif;
83         }
84
85         .use-case-item{
86             flex-grow: 1;
87             margin: 48px auto;
88             margin-right: 16px;
89             padding: 16px;
90             color: rgba(245, 245, 245, 0.925);
91             border: 2px solid rgb(59, 165, 165);
92             box-shadow: 5px 5px rgba(0, 255, 255, 0.658);
93         }
94
95         .use-case-title{
96             font-weight: 800;
97             font-size: 24px;
98         }
99
100        .use-case-description{
101            font-weight: 400;
102            font-size: 16px;
103            line-height: 2rem;
```

```
102     color: #9e9d9d;
103 }
104     """', unsafe_allow_html=True
105 )
106
107 st.markdown(
108     f"""
109     <div class="use-case-container">
110     <div class="use-case-item">
111         <div class="use-case-title">
112             <p>Platform Transition</p>
113             <span class="material-symbols-outlined"> compare_arrows</span>
114         </div>
115         <div class="use-case-description">
116             <p>Easily migrate your codebase from one programming language to
another, ensuring seamless platform transition and reducing development time.</p>
117         </div>
118     </div>
119     <div class="use-case-item">
120         <div class="use-case-title">
121             <p>Multilingual Collaboration</p>
122             <span class="material-symbols-outlined"> groups</span>
123         </div>
124         <div class="use-case-description">
125             <p>Facilitate collaboration among developers who prefer different
programming languages by translating code, enabling a more inclusive and
productive team environment</p>
126         </div>
127     </div>
128     <div class="use-case-item">
129         <div class="use-case-title">
130             <p>Code Reusability</p>
131             <span class="material-symbols-outlined"> cycle</span>
132         </div>
133         <div class="use-case-description">
134             <p>Maximize code reuse by translating existing code into different
languages for various projects, ensuring consistency and saving time on
development.</p>
135         </div>
136     </div>
137 </div>
138     """', unsafe_allow_html=True
139 )
140
141
142
```

```

143     source_code_snippet = st.text_area("Enter the code snippet you want to
        translate:")
144     target_language = st.selectbox("Select the target programming
        language:",languages)
145     if st.button("Translate"):
146         if source_code_snippet.strip():
147             with st.spinner("Translating code..."):
148                 try:
149                     translated_code = translate_code(source_code_snippet,
        target_language)
150                     print(translated_code)
151                     st.success("Code translation complete!")
152                     st.markdown(translated_code)
153                 except Exception as e:
154                     st.error(f"Error translating code: {e}")
155             else:
156                 st.error("Please enter a code snippet.")
157
158
159 if __name__ == "__main__":
160     if len(sys.argv) == 1:
161         main()
162     elif len(sys.argv) < 3 or sys.argv[1] == "help" :
163         print("Usage: [Target Language] [Input File] [Output File]")
164         print("Languages: \n")
165         for i in languages:
166             print(f"[>] {i}")
167     elif sys.argv[1].title() in languages:
168         commandLine(sys.argv[1])
169

```

test.html

```

1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <title>Document</title>
7      <link rel="stylesheet" href="test.css">

```

```
8   <link rel="stylesheet"
    href="https://fonts.googleapis.com/css2?family=Material+Symbols+Outlined:opsz,wght,FILL,GRAD@24,400,0,0" />
9 </head>
10 <body>
11   <div class="use-case-container">
12     <div class="use-case-item">
13       <div class="use-case-title">
14         <p>Platform Transition</p>
15         <span class="material-symbols-outlined"> compare_arrows</span>
16       </div>
17       <div class="use-case-description">
18         <p>Easily migrate your codebase from one programming language to
another, ensuring seamless platform transition and reducing development time.</p>
19       </div>
20     </div>
21     <div class="use-case-item">
22       <div class="use-case-title">
23         <p>Multilingual Collaboration</p>
24         <span class="material-symbols-outlined">groups</span>
25       </div>
26       <div class="use-case-description">
27         <p>Facilitate collaboration among developers who prefer different
programming languages by translating code, enabling a more inclusive and
productive team environment</p>
28       </div>
29     </div>
30     <div class="use-case-item">
31       <div class="use-case-title">
32         <p>Code Reusability</p>
33         <span class="material-symbols-outlined">cycle</span>
34       </div>
35       <div class="use-case-description">
36         <p>Maximize code reuse by translating existing code into different
languages for various projects, ensuring consistency and saving time on
development.</p>
37       </div>
38     </div>
39   </div>
40 </body>
41 </html>
```

test.css

```
1  body{
2    background-color: rgb(14, 17, 23)
3  }
4
5  .use-case-container{
6    min-height: 30vh;
7    max-width: 60%;
8    margin: auto auto;
9    display: flex;
10   justify-content: space-between;
11   font-family: "Source Sans Pro", sans-serif;
12   /* background-color: blue; */
13 }
14
15 .use-case-item{
16   flex-grow: 1;
17   margin: 24px;
18   padding: 16px;
19   color: rgba(245, 245, 245, 0.925);
20   border: 2px solid rgb(59, 165, 165);
21   box-shadow: 5px 5px rgba(0, 255, 255, 0.658);
22 }
23
24
25 .use-case-title{
26   font-weight: 800;
27   font-size: 24px;
28 }
29 .use-case-description{
30   font-weight: 400;
31   font-size: 16px;
32   line-height: 2rem;
33   color: #9e9d9d;
34 }
```