

MINI PROJECT1

CCAI-22I

EasyTranslator

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Introduction:

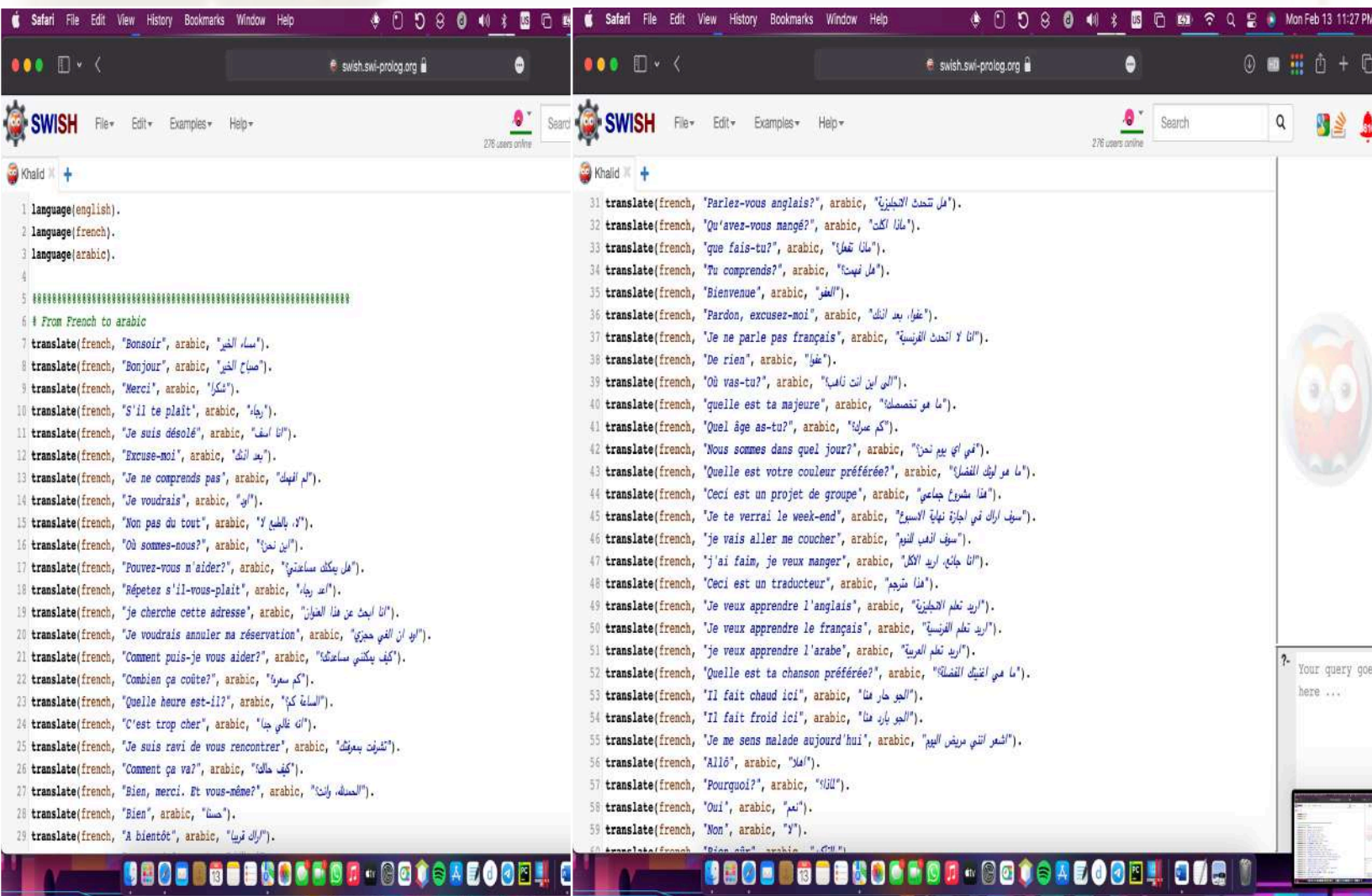
This code defines a Prolog program for translating phrases between different languages. It supports the English, French, and Arabic languages. The program includes predicates to check if a language is supported, perform a translation, and handle errors. The program uses a helper predicate to find the translation based on the predefined translations in the database. If a requested translation cannot be found, the program outputs an error message.

Goal and strategies of the code:

The goal of the code is to provide a Prolog program for translating phrases between different languages. It supports the English, French, and Arabic languages.

The code uses a database of predefined translations, to perform the actual translations. The program finds the correct translation by searching the database for a matching translate/4 predicate. If the requested translation is found, the translate_helper predicate succeeds and returns the correct translation. If the requested translation cannot be found, the catch-all translate/4 predicate is called, and it outputs an error message.

Code



```
1 language(english).
2 language(french).
3 language(arabic).
4
5 =====
6 # From French to arabic
7 translate(french, "Bonsoir", arabic, "ساء الخير").
8 translate(french, "Bonjour", arabic, "صباح الخير").
9 translate(french, "Merci", arabic, "شكرا").
10 translate(french, "S'il te plait", arabic, "رجاء").
11 translate(french, "Je suis désolé", arabic, "انا اسف").
12 translate(french, "Excuse-moi", arabic, "تبد انك").
13 translate(french, "Je ne comprends pas", arabic, "الم افهيك").
14 translate(french, "Je voudrais", arabic, "اين").
15 translate(french, "Non pas du tout", arabic, "لا بالطبع لا").
16 translate(french, "Où sommes-nous?", arabic, "اين نحن").
17 translate(french, "Pouvez-vous m'aider?", arabic, "هل بيكك مساعدي").
18 translate(french, "Répétez s'il-vous-plait", arabic, "اعد رجا").
19 translate(french, "je cherche cette adresse", arabic, "انا ابجث عن هذا العنوان").
20 translate(french, "Je voudrais annuler ma réservation", arabic, "الود ان القى حجزى").
21 translate(french, "Comment puis-je vous aider?", arabic, "كيف بيكتنى مساعدي").
22 translate(french, "Combien ça coûte?", arabic, "كم سعرة").
23 translate(french, "Quelle heure est-il?", arabic, "الساعة كم").
24 translate(french, "C'est trop cher", arabic, "انه غالى جا").
25 translate(french, "Je suis ravi de vous rencontrer", arabic, "تشرفت بمعرفتك").
26 translate(french, "Comment ça va?", arabic, "كيف حالك").
27 translate(french, "Bien, merci. Et vous-même?", arabic, "الحمد، وانك").
28 translate(french, "Bien", arabic, "حسنا").
29 translate(french, "A bientôt", arabic, "انراك قريب").
30
31 translate(french, "Parlez-vous anglais?", arabic, "هل تتحدث الانجليزية").
32 translate(french, "Qu'avez-vous mangé?", arabic, "ماذا اكلت").
33 translate(french, "que fais-tu?", arabic, "مالا تفعل").
34 translate(french, "Tu comprends?", arabic, "هل تفهنت").
35 translate(french, "Bienvenue", arabic, "الغفر").
36 translate(french, "Pardon, excusez-moi", arabic, "غفوا، بعد انك").
37 translate(french, "Je ne parle pas français", arabic, "انا لا اتحدث الفرنسية").
38 translate(french, "De rien", arabic, "غفوا").
39 translate(french, "Où vas-tu?", arabic, "الى اين انت تاهب").
40 translate(french, "quelle est ta majeure", arabic, "ما هو تخصصك").
41 translate(french, "Quel âge as-tu?", arabic, "كم عمرك").
42 translate(french, "Nous sommes dans quel jour?", arabic, "نعمي اي يوم نحن").
43 translate(french, "Quelle est votre couleur préférée?", arabic, "ما هو لوانك المفضل").
44 translate(french, "Ceci est un projet de groupe", arabic, "هذا مشروع جماعي").
45 translate(french, "Je te verrai le week-end", arabic, "سوف اراك في اجازة نهاية الاسبوع").
46 translate(french, "je vais aller me coucher", arabic, "سوف اذهب للنوم").
47 translate(french, "j'ai faim, je veux manger", arabic, "انا جائع، اريد اكل").
48 translate(french, "Ceci est un traducteur", arabic, "هذا مترجم").
49 translate(french, "Je veux apprendre l'anglais", arabic, "اريد تعلم الانجليزية").
50 translate(french, "Je veux apprendre le français", arabic, "اريد تعلم الفرنسية").
51 translate(french, "je veux apprendre l'arabe", arabic, "اريد تعلم العربية").
52 translate(french, "Quelle est ta chanson préférée?", arabic, "ما هي اغنيك المفضلة").
53 translate(french, "Il fait chaud ici", arabic, "الحر حار هنا").
54 translate(french, "Il fait froid ici", arabic, "الحر بارد هنا").
55 translate(french, "Je me sens malade aujourd'hui", arabic, "اشعر انني مريض اليوم").
56 translate(french, "Allô", arabic, "اهلا").
57 translate(french, "Pourquoi?", arabic, "لماذا").
58 translate(french, "Oui", arabic, "نعم").
59 translate(french, "Non", arabic, "لا").
60 translate(french, "Bien sûr", arabic, "بالطبع").
```

Safari File Edit View History Bookmarks Window Help

swish.swi-prolog.org

SWISH File Edit Examples Help

278 users online

Search

Khalid

```
64 $ From Arabic to french
65 :- disjointous translate/4.
66 translate(arabic, "نساء الخير", french, "Bonsoir").
67 translate(arabic, "صباح الخير", french, "Bonjour").
68 translate(arabic, "شكرا", french, "Merci").
69 translate(arabic, "رجاء", french, "S'il te plait").
70 translate(arabic, "انا اسف", french, "Je suis désolé").
71 translate(arabic, "بعد ذلك", french, "Excuse-moi").
72 translate(arabic, "لم افهمك", french, "Je ne comprends pas").
73 translate(arabic, "او", french, "Je voudrais").
74 translate(arabic, "لا بالطبع لا", french, "Non pas du tout").
75 translate(arabic, "اين نحن", french, "Où sommes-nous?").
76 translate(arabic, "هل يمكنك مساعدتي", french, "Pouvez-vous m'aider?").
77 translate(arabic, "اعد رجاء", french, "Répétez s'il-vous-plait").
78 translate(arabic, "انا ابحث عن هذا العنوان", french, "je cherche cette adresse").
79 translate(arabic, "او ان القى حجزى", french, "Je voudrais annuler ma réservation").
80 translate(arabic, "كيف يمكنى مساعدتك", french, "Comment puis-je vous aider?").
81 translate(arabic, "كم سعرا", french, "Combien ça coûte?").
82 translate(arabic, "الساعة كي", french, "Quelle heure est-il?").
83 translate(arabic, "انه غالى جدا", french, "C'est trop cher").
84 translate(arabic, "تشرىف بدمرك", french, "Je suis ravi de vous rencontrer").
85 translate(arabic, "كيف حاله", french, "Comment ça va?").
86 translate(arabic, "الحسنة وانت", french, "Bien, merci. Et vous-même?").
87 translate(arabic, "حسنا", french, "Bien").
88 translate(arabic, "اراك قريبا", french, "A bientôt").
89 translate(arabic, "الى اللقاء", french, "Au revoir").
90 translate(arabic, "هل تتحدث الانجليزى", french, "Parlez-vous anglais?").
91 translate(arabic, "ماذا اكلت", french, "Qu'avez-vous mangé?").
92 translate(arabic, "ماذا تفعل", french, "que fais-tu?").
```

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SWISH File Edit Examples Help

277 users online

Search

Khalid

```
92 translate(arabic, "ماذا تفعل", french, "que fais-tu?").
93 translate(arabic, "هل تفهم", french, "Tu comprends?").
94 translate(arabic, "الخير", french, "Bienvenue").
95 translate(arabic, "غوا بعد ذلك", french, "Pardon, excusez-moi").
96 translate(arabic, "انا لا اتحدث الفرنسية", french, "Je ne parle pas français").
97 translate(arabic, "غوا", french, "De rien").
98 translate(arabic, "الى اين انت ذاهب", french, "Où vas-tu?").
99 translate(arabic, "ما هو تخصصك", french, "quelle est ta majeure").
100 translate(arabic, "كم عمرك", french, "Quel âge as-tu?").
101 translate(arabic, "نعمي اي يوم نحن", french, "Nous sommes dans quel jour?").
102 translate(arabic, "ما هو لوكك المفضل", french, "Quelle est votre couleur préférée?").
103 translate(arabic, "هنا مشروع جدي", french, "Ceci est un projet de groupe").
104 translate(arabic, "سوف اراك في اجازة نهاية الاسبوع", french, "Je te verrai le week-end").
105 translate(arabic, "سوف اذهب للنوم", french, "je vais aller me coucher").
106 translate(arabic, "انا جائى اريد الاكل", french, "j'ai faim, je veux manger").
107 translate(arabic, "هنا مترجم", french, "Ceci est un traducteur").
108 translate(arabic, "اريد تعلم الانجليزية", french, "Je veux apprendre l'anglais").
109 translate(arabic, "اريد تعلم الفرنسية", french, "Je veux apprendre le français").
110 translate(arabic, "اريد تعلم العربية", french, "je veux apprendre l'arabe").
111 translate(arabic, "ما هي اغنيةك المفضلة", french, "Quelle est ta chanson préférée?").
112 translate(arabic, "الحر حار هنا", french, "Il fait chaud ici").
113 translate(arabic, "الحر بارد هنا", french, "Il fait froid ici").
114 translate(arabic, "اشعر اننى مريض اليوم", french, "Je me sens malade aujourd'hui").
115 translate(arabic, "اعلا", french, "Allô").
116 translate(arabic, "لماذا", french, "pourquoi?").
117 translate(arabic, "نعم", french, "Oui").
118 translate(arabic, "لا", french, "Non").
119 translate(arabic, "بالأكيد", french, "Bien sûr").
120 translate(arabic, "غالبا", french, "Probablement").
121
```

?- Your query goes here ...


```
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SWISH File Edit Examples Help
Khalid x +
123 % From English to French and Arabic
124
125 :- discontinuous translate/4.
126 translate(english, "Good evening", french, "Bonsoir").
127 translate(english, "Good evening", arabic, "مساء الخير").
128 translate(english, "Good morning", french, "Bonjour").
129 translate(english, "Good morning", arabic, "صباح الخير").
130 translate(english, "Thank you", french, "Merci").
131 translate(english, "Thank you", arabic, "شكرا").
132 translate(english, "Please", french, "S'il te plaît").
133 translate(english, "Please", arabic, "رجاء").
134 translate(english, "I am sorry", french, "Je suis désolé").
135 translate(english, "I am sorry", arabic, "انا اسف").
136 translate(english, "Excuse me", french, "Excuse-moi").
137 translate(english, "Excuse me", arabic, "بعد اذنك").
138 translate(english, "I do not understand", french, "Je ne comprends pas").
139 translate(english, "I do not understand", arabic, "لم افهمك").
140 translate(english, "I would like", french, "Je voudrais").
141 translate(english, "I would like", arabic, "اود").
142 translate(english, "No, not at all", french, "Non pas du tout").
143 translate(english, "No, not at all", arabic, "لا، بالطبع لا").
144 translate(english, "Where are we?", french, "Où sommes-nous?").
145 translate(english, "Where are we?", arabic, "اين نحن؟").
146 translate(english, "Can you help me?", french, "Pouvez-vous m'aider?").
147 translate(english, "Can you help me?", arabic, "هل يمكنك مساعدتي").
148 translate(english, "Please repeat", french, "Répétez s'il-vous-plait").
149 translate(english, "Please repeat", arabic, "اعد رجاء").
150 translate(english, "I am looking for this address", french, "je cherche cette adresse").
151 translate(english, "I am looking for this address", arabic, "انا ابحث عن هذا العنوان").
```

```
Safari File Edit View History Bookmarks Window Help
swish.swi-prolog.org
276 users online
Search
Khalid x +
159 translate(english, "What time is it?", arabic, "الساة كم؟").
160 translate(english, "It is too expensive", french, "C'est trop cher").
161 translate(english, "It is too expensive", arabic, "انه غالي جدا").
162 translate(english, "I am pleased to meet you", french, "Je suis ravi de vous rencontrer").
163 translate(english, "I am pleased to meet you", arabic, "تشرفت بمعرفتك").
164 translate(english, "How are you?", french, "Comment ça va?").
165 translate(english, "How are you?", arabic, "كيف حاله").
166 translate(english, "Fine thanks, and you?", french, "Bien, merci. Et vous-même?").
167 translate(english, "Fine thanks, and you?", arabic, "الحمد، وانتم").
168 translate(english, "Fine", french, "Bien").
169 translate(english, "Fine", arabic, "حسنا").
170 translate(english, "See you soon", french, "A bientôt").
171 translate(english, "See you soon", arabic, "اراك قريبا").
172 translate(english, "Goodbye", french, "Au revoir").
173 translate(english, "Goodbye", arabic, "الى اللقاء").
174 translate(english, "Do you speak English?", french, "Parlez-vous anglais?").
175 translate(english, "Do you speak English?", arabic, "هل تتحدث الانجليزية").
176 translate(english, "What did you eat?", french, "Qu'avez-vous mangé?").
177 translate(english, "What did you eat?", arabic, "ماذا اكلت").
178 translate(english, "What are you doing?", french, "que fais-tu?").
179 translate(english, "What are you doing?", arabic, "ماذا تفعل").
180 translate(english, "Do you understand?", french, "Tu comprends?").
181 translate(english, "Do you understand?", arabic, "هل تفهم").
182 translate(english, "Welcome", french, "Bienvenue").
183 translate(english, "Welcome", arabic, "الغفر").
184 translate(english, "Pardon, excuse me", french, "Pardon, excusez-moi").
185 translate(english, "Pardon, excuse me", arabic, "عذرا، بعد اذنك").
186 translate(english, "I do not speak French", french, "Je ne parle pas français").
187 translate(english, "I do not speak French", arabic, "انا لا اتحدث الفرنسية").
188 translate(english, "You are welcome", french, "De rien").
```

```
Safari File Edit View History Bookmarks Window Help
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SWISH File Edit Examples Help
276 users

Khalid +

207 translate(english, "I am hungry, I want to eat", arabic, "انا جائع, اريد الاكل").
208 translate(english, "This is a translator", french, "Ceci est un traducteur").
209 translate(english, "This is a translator", arabic, "هنا مترجم").
210 translate(english, "I want to learn English", french, "Je veux apprendre l'anglais").
211 translate(english, "I want to learn English", arabic, "اريد تعلم الانجليزية").
212 translate(english, "I want to learn French", french, "Je veux apprendre le français").
213 translate(english, "I want to learn French", arabic, "اريد تعلم الفرنسية").
214 translate(english, "I want to learn Arabic", french, "je veux apprendre l'arabe").
215 translate(english, "I want to learn Arabic", arabic, "اريد تعلم العربية").
216 translate(english, "What is your favorite song?", french, "Quelle est ta chanson préférée?").
217 translate(english, "What is your favorite song?", arabic, "ما هي اغنيك المفضلة").
218 translate(english, "It is hot in here", french, "Il fait chaud ici").
219 translate(english, "It is hot in here", arabic, "الحار هنا").
220 translate(english, "It is cold in here", french, "Il fait froid ici").
221 translate(english, "It is cold in here", arabic, "البارد هنا").
222 translate(english, "I feel sick today", french, "Je me sens malade aujourd'hui").
223 translate(english, "I feel sick today", arabic, "اشعر انني مريض اليوم").
224 translate(english, "Hello", french, "Allô").
225 translate(english, "Hello", arabic, "هلا").
226 translate(english, "Why?", french, "pourquoi?").
227 translate(english, "Why?", arabic, "لماذا").
228 translate(english, "Yes", french, "Oui").
229 translate(english, "Yes", arabic, "نعم").
230 translate(english, "No", french, "Non").
231 translate(english, "No", arabic, "لا").
232 translate(english, "Sure", french, "Bien sûr").
233 translate(english, "Sure", arabic, "بالتأكيد").
234 translate(english, "Probably", french, "Probablement").
235 translate(english, "Probably", arabic, "غالباً").
```

```
Safari File Edit View History Bookmarks Window Help
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SWISH File Edit Examples Help
276 users online

Khalid +

227 translate(english, "Why?", arabic, "لماذا").
228 translate(english, "Yes", french, "Oui").
229 translate(english, "Yes", arabic, "نعم").
230 translate(english, "No", french, "Non").
231 translate(english, "No", arabic, "لا").
232 translate(english, "Sure", french, "Bien sûr").
233 translate(english, "Sure", arabic, "بالتأكيد").
234 translate(english, "Probably", french, "Probablement").
235 translate(english, "Probably", arabic, "غالباً").
236
237 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
238 % Define a predicate to check if a language is supported
239 is_supported_language(Lang) :-
240     language(Lang).
241
242 % Define a predicate to perform the translation
243 translate(FromLang, FromPhrase, ToLang, ToPhrase) :-
244     is_supported_language(FromLang),
245     is_supported_language(ToLang),
246     translate_helper(FromLang, FromPhrase, ToLang, ToPhrase).
247
248 % Define a helper predicate to find the translation
249 translate_helper(FromLang, FromPhrase, ToLang, ToPhrase) :-
250     translate(FromLang, FromPhrase, ToLang, ToPhrase).
251
252 % Define a predicate to handle errors
253 translate(_, _, _) :-
254     write('Error: Unsupported source or target language or translation not found').
255
```


Output

The image displays three screenshots of the SWISH web interface, showing a list of translation exercises and their solutions. The interface includes a search bar, a list of exercises, and a solution area.

Screenshot 1: Shows the first exercise: `translate(english,"Good morning",arabic,X).` The solution is: `X = "صباح الخير".`

Screenshot 2: Shows the second exercise: `translate(english,"I am hungry, I want to eat",arabic,X).` The solution is: `X = "أنا جائع، أريد الأكل".`

Screenshot 3: Shows the third exercise: `translate(english,"I will go to sleep",arabic,X).` The solution is: `X = "سوف أذهب للنوم".`

Output

The image displays three sequential screenshots of the SWISH web application, which is used for language learning. The interface includes a menu bar (File, Edit, Examples, Help), a search bar, and a list of users online (271 users online). The main content area shows a list of dialogues in French and English, with a 'translate' function at the bottom.

Screenshot 1: Shows a list of dialogues starting with 'Khalid' and 'Everyone'. The dialogues are numbered 165 to 186. The 'translate' function is at the bottom.

Screenshot 2: Shows a list of dialogues starting with 'Khalid' and 'Everyone'. The dialogues are numbered 165 to 189. The 'translate' function is at the bottom.

Screenshot 3: Shows a list of dialogues starting with 'Khalid' and 'Everyone'. The dialogues are numbered 165 to 190. The 'translate' function is at the bottom.

Output

The image displays three sequential screenshots of the SWISH web application, which is used for learning languages through spaced repetition. The interface includes a menu bar (File, Edit, Examples, Help), a search bar, and a user status indicator (269 users online). The main content area shows a list of items for review, each with a label (e.g., Everyone, Where), a translation, and a question mark. The items are organized into groups, with the first group containing 10 items and the second group containing 10 items. The third screenshot shows a different set of items, also organized into groups. The interface is designed to be user-friendly and efficient for language learning.

Screenshot 1: Shows the first group of items. The first item is "Everyone = 'صباح الخير'", followed by "Where = 'Bonsolr'", "Everyone = 'صباح الخير'", "Where = 'Bonjour'", "Everyone = 'شكر'", "Where = 'Merci'", "Everyone = 'رجاء'", "Where = 'S'il te plait'", "Everyone = 'انا لاف'", "Where = 'Je suis desolé'", "Everyone = 'بعد انك'", "Where = 'Excuse-moi'", "Everyone = 'تم المهاد'", "Where = 'Je ne comprends pas'", "Everyone = 'اورد'", "Where = 'Je voudrais'", "Everyone = 'لا، بالطبع لا'", "Where = 'Non pas du tout'", "Everyone = 'ان لنين'", "Where = 'Où sommes-nous?'", and a question mark followed by "translate(arabic,Everyone,french,Where)".

Screenshot 2: Shows the second group of items. The first item is "Everyone = 'هل يمكنك مساعدتي'", followed by "Where = 'Pouvez-vous m'aider?'", "Everyone = 'الرجاء'", "Where = 'Répétez s'il-vous-plait'", "Everyone = 'انا لاف من هذا العنوان'", "Where = 'Je cherche cette adresse'", "Everyone = 'اورد ان الفلي جزوي'", "Where = 'Je voudrais annuler ma réservation'", "Everyone = 'كيف يمكنني مساعدتك'", "Where = 'Comment puis-je vous aider?'", "Everyone = 'كم سعر'", "Where = 'Combien ça coûte?'", "Everyone = 'مساعدكم'", "Where = 'Quelle heure est-il?'", "Everyone = 'انه غالي جدا'", "Where = 'C'est trop cher'", "Everyone = 'تشرفت بمرقتك'", "Where = 'Je suis ravi de vous rencontrer'", "Everyone = 'كيف حالك'", "Where = 'Comment ça va?'", "Everyone = 'التمنيش، وادني'", "Where = 'Bien, merci. Et vous-même?'", and a question mark followed by "translate(arabic,Everyone,french,Where)".

Screenshot 3: Shows the third group of items. The first item is "Everyone = 'خدا'", followed by "Where = 'Bien'", "Everyone = 'اوك اريد'", "Where = 'A bientôt'", "Everyone = 'التي اللاد'", "Where = 'Au revoir'", "Everyone = 'هل تحدث الاجازة'", "Where = 'Parlez-vous anglais?'", "Everyone = 'ملا نكت'", "Where = 'Qu'avez-vous mangé?'", "Everyone = 'ملا نكل'", "Where = 'que fais-tu?'", "Everyone = 'هل اهدت'", "Where = 'Tu comprends?'", "Everyone = 'الطر'", "Where = 'Bienvenue'", "Everyone = 'علا بعد انك'", "Where = 'Pardon, excusez-moi'", "Everyone = 'انا لا تحدث الفرنسية'", "Where = 'Je ne parle pas français'", "Everyone = 'الطر'", and a question mark followed by "translate(arabic,Everyone,french,Where)".

User manual

- You can translate from **Arabic to English** by typing **Translate(english, X,arabic,"اهلا")**
 - You can translate from **English to Arabic** by typing **Translate(english, "Hello",arabic,X)**
 - You can translate from **Arabic to French** by typing **Translate(arabic, "صباح الخير",french,X)**
 - You can translate from **French to Arabic** by typing **Translate(arabic, X,french,"Bonjour")**
 - You can translate from **English to French** by typing **Translate(english, "Yes", french,X)**
 - You can translate from **French to English** by typing **Translate(english, X, french,"Oui")**
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- You can print all the database by typing **Translate(english, Everyone, french,Who)**
 - You can print all the database by typing **Translate(arabic, Everyone, french,Who)**

Conclusion and comments:

Through implementing and designing the code, we needed to build a tree so we can implement the rules, mostly we have built a database containing the translation of the words in 3 different languages, Arabic, English, and French, so the effort and the implementation was mostly focusing on the database built phase.

Finally, we have learnt a lot through the design and implementation phases, we learnt the logic implementation and how the artificial intelligence work in the computer, Also, we had the opportunity to touch the surface of the natural languages processing and how the computer processes and analysis words and sentences