CMPE 150 Introduction to Computing, Fall 2017 - Project 2 Project Report

Problem Description:

The problem is writing a java program which implements the MARS Interviewing System. We have to use at least two static methods in addition to the main method and at least two methods should be returning information back to its caller method.

Problem Solution:

I handle the assignment by using scanner, while loops, if/else statements and methods which returns integers or strings back to its caller method. Firstly, I identified scanner to my program. Scanner helps me for maintaining the program as an real interview. Then, I created 3 question methods for my introduction. My first if statement is for the age criterion. First two questions are for learning the applicant's name and age. If the age of the applicant is acceptable, the program continues with the third question. The third question wants from the user to make a choice about the positions. In "question_3" method, I determined 4 different numbers (0,1,2,3). "0" for ending the program with a "Sorry"

statement and 1, 2, 3 for positions. After "question_3", the program gets into a more specific situation.

In "softwareEngineer" method, the program continues with a string called "degree". The program asks a "yes/no" question, which has an determining role in the process of the interview. I used if statement so if the answer is unsatisfying, the program returns 0. I defined an integer called "count" in the "softwareEngineer" method for checking the requested number of programing languages also. Additionally, I added while loops in the code for getting an acceptable answer. In that way, the question repeats until the program gets an appropriate answer. Finally, I have created a "male" method which has an significant role in ending the program especially if the applicant reaches the last stage. This method is for learning the applicant's gender and if the user enters male, the output asks whether he completed his military service or not.

Shortly, I used while loops and if/else statements mostly. In each job method (accountant, academic etc.), I created if/else statements and while loops that has a similar function on each steps. The main purpose of the if/else statements is continuing the interview depending on the user's input. Question repeat it self until

the wanted input is entered thanks to while loops. I used scanner and string as a parameter in each method except "question_3" and "question_1". I used only scanner as a parameter for them. It's important to emphasize that returning 0 for ending the program and returning 1 for maintaining the program has a significant role in accomplishing the problem.

Implementation:

```java
1  //SA2016400075.java
2  import java.util.Scanner;
3  public class SA2016400075{
4  public static void main(String[] args) {
5
6          Scanner console = new Scanner(System.in);
7          System.out.println("    Welcome to MARS Interviewing System");
8
9          String name = question_1(console); // question_1 returns applicant's name
10         int age = question_2(console, name); //question_1 returns applicant's age
11
12         if (age < 18) { // checking for age criterion
13             System.out.println("Sorry " + name + ". You should be 18 or older for this job.");
14         }
15         else { // to start a specific interview for each job
16
17             int job = question_3(console); // job return 0 for wrong job applications and 1, 2 or 3 for available jobs.
18
19             if (job == 0) {
20                 System.out.println("Sorry, we are looking for software engineer, accountant or academic.");
21             }
22             else if (job == 1) {
23                 softwareEngineer(console, name);
24             }
25             else if (job == 2) {
26                 accountant(console, name);
27             }
28             else if (job == 3) {
29                 academic(console, name);
30             }
31         }
32     }
33
34     // first question for applicant's name
35     public static String question_1(Scanner console) {
36
37         System.out.print("Can I learn your name? ");
38         String name = console.nextLine();
39         return name;
40     }
41
42     // second question for applicant's age
43     public static int question_2(Scanner console, String name) {
44
45         System.out.print("Hello " + name + ". How old are you? ");
46         int age = console.nextInt();
```

```java
47              return age;
48          }
49
50          // third question for determining the position
51          public static int question_3(Scanner console) {
52
53              System.out.print("For which position are you applying? ");
54              console.nextLine();
55              String job = console.nextLine();
56              if (job.equalsIgnoreCase("Software Engineer")) {
57                  return 1;
58              }
59              else if (job.equalsIgnoreCase("Accountant")) {
60                  return 2;
61              }
62              else if(job.equalsIgnoreCase("Academic")) {
63                  return 3;
64              }
65              else {
66                  return 0;
67              }
68          }
69
70          // This method consists of the questions which are asked to a software engineer applicant,
71          // if the applicant is unsatisfying it returns "sorry" message and 0, otherwise it returns "congratulations" message and 1.
72          public static int softwareEngineer(Scanner console, String name) {
73
74              String degree = "";
75              while (!(degree.equalsIgnoreCase("yes") || degree.equalsIgnoreCase("no"))) { // Questions repeat itself until the wanted input(yes or no) is entered
76                  System.out.print("Great. Do you have a university degree? ");
77                  degree = console.nextLine();
78              }
79
80              if (degree.equalsIgnoreCase("no")) {    // if statements are for determining the process of the interview.
81                  System.out.print("Sorry " + name + ". You should have a university degree for this job.");
82                  return 0;
83              }
84
85              String field = "";
86              System.out.print("In which field? ");
87              field = console.nextLine();
88              if (!(field.equalsIgnoreCase("Software engineering") || field.equalsIgnoreCase("computer science") || field.equalsIgnoreCase("computer engineering"))) {
89                  System.out.print("Sorry " + name + ". You should have a software engineering, computer science or computer engineering degree for this job.");
90                  return 0;
91              }
92
93              int count = 0; // number of programming languages
94              String java = "";
95              while (!(java.equalsIgnoreCase("yes") || java.equalsIgnoreCase("no"))) {
96                  System.out.print("Do you know how to program in Java? ");
97                  java = console.nextLine();
98              }
99
100             if (java.equalsIgnoreCase("yes")) {
101                 count++;
102             }
103
104             String C = "";
105             while (!(C.equalsIgnoreCase("yes") || C.equalsIgnoreCase("no"))) {
106                 System.out.print("Do you know how to program in C? ");
107                 C = console.nextLine();
108             }
109
110             if (C.equalsIgnoreCase("yes")) {
111                 count++;
112             }
113
114             String Prolog = "";
115             while (!(Prolog.equalsIgnoreCase("yes") || Prolog.equalsIgnoreCase("no"))) {
116                 System.out.print("Do you know how to program in Prolog? ");
117                 Prolog = console.nextLine();
118             }
119
120             if (Prolog.equalsIgnoreCase("yes")) {
121                 count++;
122             }
123
124             if (count < 2) { // It checks the number of programming languages
125                 System.out.print("Sorry " + name + ". This position is eligible for only the people whoo knows at least 2 programming languages.");
126                 return 0;
127             }
128
129             String work = "";
130             while (!(work.equalsIgnoreCase("yes") || work.equalsIgnoreCase("no"))) {
131                 System.out.print("Awesome. Have you worked as a software engineer before? ");
132                 work = console.nextLine();
133             }
134
135             if (!work.equalsIgnoreCase("yes")) {
136                 if (question_4(console, name) == 0) { // for learning whether if the applicant have a graduate degree or not
137                     return 0;
138                 }
```

```java
139              }
140
141          else if (work.equalsIgnoreCase("yes")) {
142              System.out.print("How many years have your worked? ");
143              int years = console.nextInt();
144              if (years < 4) {
145                  if (question_4(console, name) == 0) { // for learning whether if the applicant have a graduate degree or not
146                      return 0;
147                  }
148              }
149          }
150
151          if (male(console, name) == 1) { // It checks the gender and the military service. Male method is in the end of the program.
152              System.out.print("Congratulations " + name + "! You got the job!");
153              return 1;
154          }
155          else {
156              return 0;
157          }
158      }
159
160      //checks for the graduate degree of software engineer applicants
161      public static int question_4(Scanner console, String name) {
162
163          String graduate_degree = "";
164          while (!(graduate_degree.equalsIgnoreCase("yes") || graduate_degree.equalsIgnoreCase("no"))) {
165          System.out.print("Do you have a graduate degree in software engineering? ");
166          graduate_degree = console.nextLine();
167          }
168
169          if (!graduate_degree.equalsIgnoreCase("yes")) {
170              System.out.print("Sorry " + name + ". You should have either more than three years of experience or graduate degree in software engineering for this job.");
171              return 0;
172          }
173          return 1;
174      }
175
176      // This method consists of the questions which are asked to an accountant applicant,
177      // if the applicant is unsatisfying it returns "sorry" message and 0, otherwise it returns "congratulations" message and 1.
178      public static int accountant(Scanner console, String name) {
179
180          String degree = "";
181          while (!(degree.equalsIgnoreCase("yes") || degree.equalsIgnoreCase("no"))) {
182          System.out.print("Do you have an accounting degree? ");
183          degree = console.nextLine();
184          }
185
186          if (!degree.equalsIgnoreCase("yes")) {
187              System.out.println("Sorry " + name + ". You should have an accounting degree for this job.");
188              return 0;
189          }
190
191          String excel = "";
192          while (!(excel.equalsIgnoreCase("yes") || excel.equalsIgnoreCase("no"))) {
193          System.out.print("Do you know Excel? ");
194          excel = console.nextLine();
195          }
196
197          if (!excel.equalsIgnoreCase("yes")) {
198              System.out.println("Sorry " + name + ". You should know Excel for this job.");
199              return 0;
200          }
201
202          String english = "";
203          while (!(english.equalsIgnoreCase("yes") || english.equalsIgnoreCase("no"))) {
204          System.out.print("Do you speak English fluently? ");
205          english = console.nextLine();
206          }
207
208          if (!english.equalsIgnoreCase("yes")) {
209              String friend = "";
210              while (!(friend.equalsIgnoreCase("yes") || friend.equalsIgnoreCase("no"))) {
211              System.out.print("Do you have a friend who can translate for you? ");
212              friend = console.nextLine();
213              }
214              if (!friend.equalsIgnoreCase("yes")) {
215                  System.out.println("Sorry " + name + ". You should speak English fluently or have a friend who can translate for you for this job.");
216                  return 0;
217              }
218          }
219
220          System.out.print("How many people do you know who already works in our company? ");
221          int people = console.nextInt();
222          if (people < 2) { // It checks the number of people
223              System.out.println("Sorry " + name + ". You should know at least two people who already works in our company for this job.");
224              return 0;
225          }
226
227          String license = "";
228          while (!(license.equalsIgnoreCase("yes") || license.equalsIgnoreCase("no"))) {
229          System.out.print("Do you have a driving license? ");
230          license = console.next();
```

```java
231              }
232
233              if (!license.equalsIgnoreCase("yes")) {
234                  System.out.println("Sorry " + name + ". You should have a driving license for this job.");
235                  return 0;
236              }
237
238              if (male(console, name) == 1) { // It checks the gender and the military service
239                  System.out.print("Congratulations " + name + "! You got the job!");
240                  return 1;
241              }
242              else {
243                  return 0;
244              }
245      }
246
247      // This method consists of the questions which are asked to an academic applicant,
248      // if the applicant is unsatisfying it returns "sorry" message and 0, otherwise it returns "congratulations" message and 1.
249      public static int academic(Scanner console, String name) {
250
251          String english = "";
252          while (!(english.equalsIgnoreCase("yes") || english.equalsIgnoreCase("no"))) {
253          System.out.print("Do you speak English? ");
254          english = console.nextLine();
255          }
256
257          if (!english.equalsIgnoreCase("yes")) {
258              System.out.println("Sorry " + name + ". You should speak Egnlish for this job.");
259              return 0;
260          }
261
262          System.out.print("How many papers have you published? ");
263          int paper = console.nextInt();
264          if (paper < 3) {
265              System.out.println("Sorry " + name + ". You should have published at least 3 papers for this job.");
266              return 0;
267          }
268
269          String teach = "";
270          while (!(teach.equalsIgnoreCase("yes") || teach.equalsIgnoreCase("no"))) {
271          System.out.print("Do you love to teach? ");
272          teach = console.next();
273          }
274
275          if (!teach.equalsIgnoreCase("yes")) {
276              System.out.println("Sorry " + name + ". You should love to teach for this job.");
277              return 0;
278          }
279
280          if (male(console, name) == 1) {// It checks the gender and the military service.
281              System.out.print("Congratulations " + name + "! You got the job!");
282              return 1;
283          }
284          else {
285              return 0;
286          }
287      }
288
289      // It checks if the applicant's gender is male and if so whether he has completed his military service or not.
290      public static int male(Scanner console, String name) {
291
292          String gender = "";
293          while (!gender.equalsIgnoreCase("yes") && !gender.equalsIgnoreCase("no")) {
294          System.out.print("Are you a male? ");
295          gender = console.next();
296          }
297
298          if (gender.equalsIgnoreCase("yes")) {
299              String military = "";
300              while (!military.equalsIgnoreCase("yes") && !military.equalsIgnoreCase("no")) {
301              System.out.print("Have you completed your military service? ");
302              military = console.next();
303              }
304              if (!military.equalsIgnoreCase("yes")) {
305                  System.out.print("Sorry " + name + ". You should have completed your military service for this job.");
306                  return 0;
307              }
308          }
309          return 1;
310      }
311  }
```

Outputs of the Program:

```
Console ✕
<terminated> SA2016400075 (1) [Java Application] /Library,
        Welcome to MARS Interviewing System
Can I learn your name? Sertay
Hello Sertay. How old are you? 19
For which position are you applying? Academic
Do you speak English? yes
How many papers have you published? 4
Do you love to teach? yes
Are you a male? no
Congratulations Sertay! You got the job!
```

```
Console ✕
<terminated> SA2016400075 (1) [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_144.jdk/
        Welcome to MARS Interviewing System
Can I learn your name? Sertay
Hello Sertay. How old are you? 19
For which position are you applying? Software Engineer
Great. Do you have a university degree? yes
In which field? computer science
Do you know how to program in Java? no
Do you know how to program in C? yes
Do you know how to program in Prolog? no
Sorry Sertay. You should know at least two programming languages for this job.
```

```
Console ✕
<terminated> SA2016400075 (1) [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_144
        Welcome to MARS Interviewing System
Can I learn your name? Sertay
Hello Sertay. How old are you? 19
For which position are you applying? Accountant
Do you have an accounting degree? yes
Do you know Excel? yes
Do you speak English fluently? yes
How many people do you know who already works in our company? 2
Do you have a driving license? yes
Are you a male? yes
Have you completed your military service? no
Sorry Sertay. You should have completed your military service for this job.
```

```
Console ✕
<terminated> SA2016400075 (1) [Java Application] /Library/Java/JavaVirtualMachines/jdk
        Welcome to MARS Interviewing System
Can I learn your name? Sertay
Hello Sertay. How old are you? 19
For which position are you applying? Industrial Engineer
Sorry, we are looking for software engineer, accountant or academic.
```

```
     Welcome to MARS Interviewing System
Can I learn your name? sertay
Hello sertay. How old are you? 19
For which position are you applying? accountant
Do you have an accounting degree? yes
Do you know Excel? yes
Do you speak English fluently? no
Do you have a friend who can translate for you? no
Sorry sertay. You should speak English fluently or have a friend who can translate for you for this job.
```

```
     Welcome to MARS Interviewing System
Can I learn your name? Sertay
Hello Sertay. How old are you? 19
For which position are you applying? Software Engineer
Great. Do you have a university degree? I am in my last year in Bogazici university
Great. Do you have a university degree? no
Sorry Sertay. You should have a university degree for this job.
```

```
     Welcome to MARS Interviewing System
Can I learn your name? Sertay
Hello Sertay. How old are you? 19
For which position are you applying? academic
Do you speak English? yes
How many papers have you published? 1
Sorry Sertay. You should have published at least 3 papers for this job.
```

```
     Welcome to MARS Interviewing System
Can I learn your name? sertay
Hello sertay. How old are you? 19
For which position are you applying? Software Engineer
Great. Do you have a university degree? yes
In which field? computer science
Do you know how to program in Java? yes
Do you know how to program in C? yes
Do you know how to program in Prolog? a little bit
Do you know how to program in Prolog? no
Awesome. Have you worked as a software engineer before? yes
How many years have your worked? 4
Are you a male? yes
Have you completed your military service? yes
Congratulations sertay! You got the job!
```

Conclusion:

As seen from the outputs, the program is able to handle the requested task correctly. I don't get any compiler errors and I get the requested outputs.