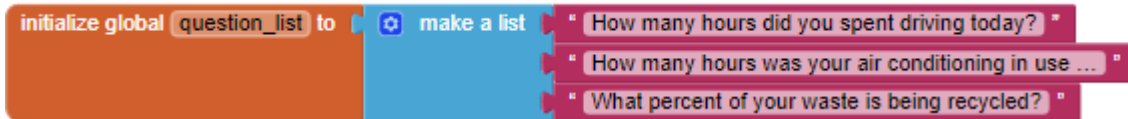


AP Computer Science Principles: 2020 Create Task  
Student Sample C

3a.

My app is intended to lessen the effects of global warming and to decrease the amount of non recyclable waste we produce. In the video, you can see the question label that displays a random list item from “global questions list”. Once the user reads the question, they answer it using the text box. Depending on the users input, the program will produce various outputs, which it pulls from “global solutions list”. If the program decides the user spends too much time driving, using their AC, or doesn’t recycle enough, they will notify them by displaying an output on “output label” that tells them what they can do to lessen their carbon footprint. Also, a thumbs down image is displayed, unless the input indicates they are being good with their emissions. In that case, a thumbs up is displayed and “output label” tells the user they are doing good and to keep it up.

3b.



```
initialize global question_list to make a list ["How many hours did you spent driving today?", "How many hours was your air conditioning in use ...", "What percent of your waste is being recycled?"]
```

The image shows a Scratch code block with two parts. The first part is an orange 'initialize global' block with 'question\_list' in a text field and 'to' at the end. The second part is a blue 'make a list' block with three list items in quotation marks: 'How many hours did you spent driving today?', 'How many hours was your air conditioning in use ...', and 'What percent of your waste is being recycled?'.

### CSP 2020 Sample C

```
to interpret response number_of_hours
do
  for each item in list get global question_list
  do
    if question_label . Text = select list item list get global question_list
      index 1
    then
      if get number_of_hours > 3
      then
        set output_label . Text to select list item list get global solution_list
          index 1
        set image1 . Picture to badd.png
      else
        set output_label . Text to select list item list get global solution_list
          index 4
        set image1 . Picture to good.png
      end
    end
    if question_label . Text = select list item list get global question_list
      index 2
    then
      if get number_of_hours > 3
      then
        set output_label . Text to select list item list get global solution_list
          index 2
        set image1 . Picture to badd.png
      else
        set output_label . Text to select list item list get global solution_list
          index 4
        set image1 . Picture to good.png
      end
    end
    if question_label . Text = select list item list get global question_list
      index 3
    then
      if get number_of_hours < 40
      then
        set output_label . Text to select list item list get global solution_list
          index 3
        set image1 . Picture to badd.png
      else
        set output_label . Text to select list item list get global solution_list
          index 4
        set image1 . Picture to good.png
      end
    end
  end
end
```

The data in “questions\_list” are questions that the program displays for the user. The questions are then interpreted by the user and the user gives the program its input through the text box. The procedure check through “questions list” to see which element in the list matches the question that is displayed on “question label” so that it can provided the right “output label” based on the “number of hours” that was input. The use of the questions\_list manages complexity in my program, because the program would be more complicated if I had to type the question into the if statements.

### 3.C

```

to interpret_response number_of_hours
do
  for each item in list get global question_list
  do
    if question_label . Text = select list item list get global question_list
      index 1
    then
      if get number_of_hours > 3
      then
        set output_label . Text to select list item list get global solution_list
          index 1
        set image1 . Picture to "badd.png"
      else
        set output_label . Text to select list item list get global solution_list
          index 4
        set image1 . Picture to "good.png"
      if question_label . Text = select list item list get global question_list
        index 2
      then
        if get number_of_hours > 3
        then
          set output_label . Text to select list item list get global solution_list
            index 2
          set image1 . Picture to "badd.png"
        else
          set output_label . Text to select list item list get global solution_list
            index 4
          set image1 . Picture to "good.png"
        if question_label . Text = select list item list get global question_list
          index 3
        then
          if get number_of_hours < 40
          then
            set output_label . Text to select list item list get global solution_list
              index 3
            set image1 . Picture to "badd.png"
          else
            set output_label . Text to select list item list get global solution_list
              index 4
            set image1 . Picture to "good.png"
  when Find_Response_button . Click
  do
    call interpret_response
      number_of_hours TextBox1 . Text
  
```

3c.

The procedure “interpret\_response” has a parameter and selects the response for the user based on the question and the user input. Without it, my program wouldn’t function at all.

So, the program displays the question, the user interprets it and then feeds the program data, which is their response to the question. The data that the user inputs to the program is the text from the text box. That text is the parameter for procedure “interpret response”, in the procedure, the user's input is called “number of hours”. Procedure “interpret response” processes the “number of hours” and formulates an output that it will pull from the list “solution list” based on the question and the number of hours.

The procedure uses a loop that checks what question is displayed to the user, so it can understand the parameter in the context of what question is being asked. After analyzing the question that is displayed and the “number of hours”, the procedure will pull different strings from a second list, “solutions list”. If

the user indicates that they are harming the environment through the “number of hours”, the procedure will pull an output from the second list that notifies the user that they are doing harm to the environment, and give them ways to lessen their effects. Also, an image property is set to thumbs down. If “number of hours” indicates they are being good to the environment, the program will notify them and congratulate them on their safe living. Also, the image property is set to a thumbs up.

3d.

If the question label is equal to the second element in “question list” and the parameter “number of hours” (equal to the text box text) is 6, then the second element in “solutions list” will be displayed on “output label” and image property will be set to badd.png. In this scenario, the question asked to the user asks how many hours their AC was on during that day. The user inputs 6 to the text box, indicating that their AC was on for 6 hours. This is where I wanted a message to display to the user that they are using their AC too much and offer them alternatives. So, I created a list with solutions and that message is the second element in “solution list”, so that is why the program pulls the second element from “solution list” and displays it on “output label” when the user inputs 6 for the question at index 2 in “questions list.

Another scenario, if the first element in “question list” is equal to the string displayed in “question label” and the text input by the user, or “number of hours”, is 1, then the fourth element in “solution list” is pulled and displayed on the output label and the image is set to “good.png”. In the context of my program, this scenario would mean the question asks how long the user had spent driving on that day. The program recognizes this is the question being asked and since the parameter is less than 3, then the program will display element 4 from “solutions list” that notifies the user that they are doing a good job and that they aren’t emitting too many fossil fuels. The user will also be encouraged to keep it up and a thumbs up image will pop up.