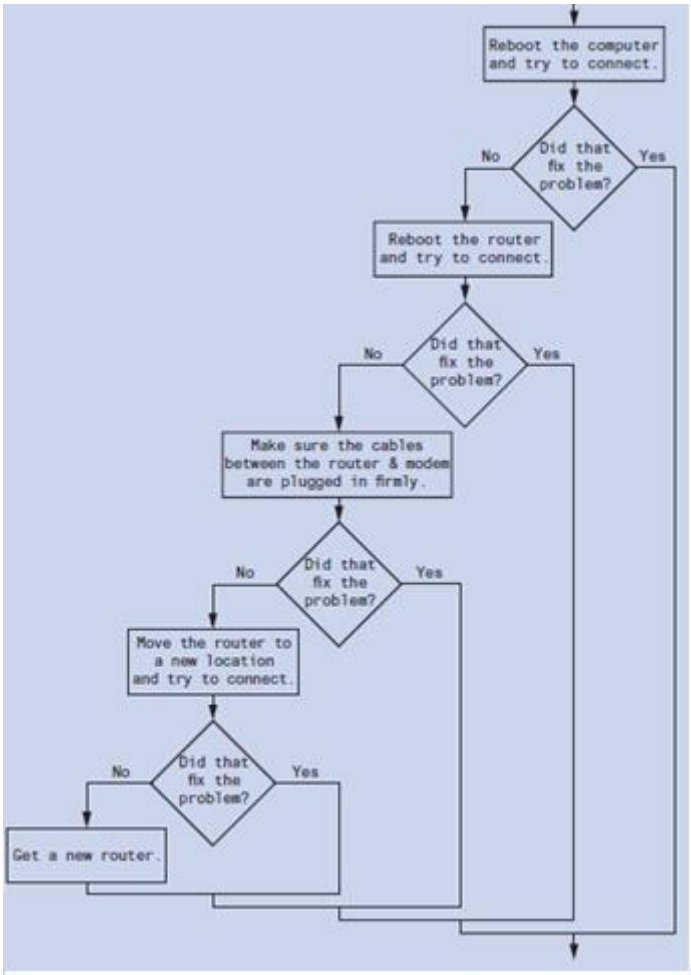
Task 01 (Decision Making 26-08-2022)

Task 1: Figure (This question is given in your text book page 165-166 exercise chapter 3 Decision Structures and Boolean Logic) shows a simplified flowchart for troubleshooting a bad Wi-Fi connection. Use the flowchart to create a program that leads a person through the steps of fixing a bad Wi-Fi connection. Here is an example of the program's output:




```
Reboot the computer and try to connect.
Did that fix the problem? no
Reboot the router and try to connect.
Did that fix the problem? yes
Notice the program ends as soon as a
solution is found to the problem. Here
is another
example of the program's output:
Reboot the computer and try to connect.
Did that fix the problem? no
Reboot the router and try to connect.
Did that fix the problem? no
Make sure the cables between the router
and modem are plugged in firmly.
Did that fix the problem? no
Move the router to a new location.
Did that fix the problem? no
Get a new router.
```

Task 1-7 are related to cards (game), if students are luckily unaware of detail of cards used in card games. Read detail of cards, otherwise move to task 1:

A pack of cards called deck has 52 cards of 4 types. Each type has 13 cards, 4 types given below. Cards have two colors. Two types of cards have red color and two types of cards have black color. In each type 9 out of total 13 cards are numbered from 2-10, where remaining 4 cards have symbols instead of number that is 11 is **J**ack, 12 is **Q**ueen, 13 is **K**ing and A for **A**ce:

Symbol	Type	Color
D	Diamond	Red
H	Heart	Red
S	Spade	Black
C	Club	Black

Symbol	Representation
(A) 1	Ace
2…10	Card Value
(J) 11	Jack
(Q) 12	Queen
(K) 13	King

In programs, we will use character to represent type of card (i.e. D for diamond, H for heart, S for Spade and C for Club. Similarly, we use integer to represent

Task 2: Write a program to generate a card randomly out of deck. Idea is generating a number 1 to 13 both included. Generate another number say type 0 to 4 (4 not included). Now using checks print card like:

Four of Club
Six of Diamond
Ace of Spade
King of Diamond

Task 3: Extend previous task to generate two cards. Check and show appropriate messages if:

- both cards have same number
- both cards have same type
- both cards have same color
- cards are in sequence

Task 4: Extend previous task to generate three cards. Check and show appropriate messages if:

- all cards have same number
- all cards have same type
- all cards have same color
- all cards are in sequence
- all cards are in sequence and of same type
- otherwise print value of highest card

Task 5: Extend previous task to generate three cards. Check and show appropriate messages if:

- all cards have same number
- all cards have same type
- all cards have same color
- all cards are in sequence
- all cards are in sequence and of same type
- two cards have same type
- two cards are in sequence
- otherwise print value of highest card

Task 6: Draw three cards that should be different. To generate different card, you may match the card with previous cards. If card has same type and value, either randomly generate different value or different type

Task 7: Simulate a game of card for two players. Draw random 3 cards for each player and print them appropriately. All 6 cards should be different. Now check and print:

- Player with all three cards having same type will win if other player has cards of two or three types
- If both players have three cards of same type (cards type can be different for both players) then if one player has cards in sequence, the player will win
- If both players have same type and cards in sequence then player with higher sequence or sum of the values on card will win, otherwise game will draw.
- If one player has two cards of same type, then the player will win if other player has cards of three types
- If both players have two cards of same type, then if only one player has two cards in sequence, the player will win
- If both players have two cards of same type and in sequence, then player with higher sequence or sum of two same type cards is higher will win
- If both players have two cards of same type and of same value, then the player with third higher value card will win otherwise game will be draw
- In case three cards are of different type for both players then player with higher sum will win, in case of same value, the player with higher card will win, otherwise the player with second higher card will win, otherwise game will be draw