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Teaching MATLAB using interactive activities

 Students have had a hard time grasping loops, if statements and switch case much less putting them together. The activity involved passing out to the class volunteers cardstock cards of varied colors with random values for F and G on the card such as:

F = 6

G = -2

 Each student picks a card. We create an array for F and G with the students in 1,2,3 order from the cards they picked. The first part of the game is to have students act like MATLAB to interpret the code:

% Arrays F and G are from the values on the cards the students

% chose.

F = [6, …]

G = [-2,…]

for N = 1:length(F)

if F(N)>4

disp(‘Raise your right hand’)

end

end

Add to the complexity by using statements in the loop like

if (F(N)<= 8) && (G>-2)

disp(‘Stand up’)

Add fun with a statement like

sort(F)

so that students have to organize themselves by their value of F.

Later in the semester we added switch case and input to the game using the card color as well as values of F and G and made it sort of like ‘Mother May I’. I would say MATLAB didn’t say you could stop etc. to be silly at various times. I had 5 volunteers. Here was the code that the class had to analyze to determine what students had to do based on the card the students had chosen.

clc

clear

% Switch Case game

for N = 1:5

cardcolor= input('Please enter green, pink, blue or purple ','s')

F(N)= input(' Enter your value of F ')

G(N) = input('Enter your value of G ')

switch cardcolor

 case 'green'

 if (F(N) <= 5 & G(N) > 2)

 disp('Raise your right hand')

 elseif G(N) <= 2

 disp ('Say Peter Piper picked a peck of pickeled peppers fast two times')

 else

 disp('Bring up a chair! You get to sit down. ')

 end

 case 'pink'

 if (F(N) < 0 | G(N) >0)

 disp('Raise your left hand')

 elseif (F(N) < -2 | G(N) <5)

 disp('Raise both hands')

 else

 disp('Pick someone to take your place.')

 end

 case 'blue'

 if (F(N)>= 1 & G(N) <4)

 disp('Put your card on top of your head.')

 else

 disp('raise your foot')

 end

 case 'purple'

 if F(N)==5

 disp ('sing something')

 elseif F(N)< 0 | G(N)<7

 disp (Pat your head and rub your tummy')

 else

 disp ('Tell those with their hands or feet up they can put them down now!')

 end

otherwise

break

end

end

Ask “What would happen if someone entered ‘yellow’ for card color? “

This activity worked so well! It was beyond my expectations.