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clc
clear

blackjack_scene = simpleGameEngine('retro_cards.png', 16, 16, 8, [255, 255, 255]);
skip_sprites = 20;

card_vals = randi(13, 1, 2);
card_suits = randi(4, 1, 2) - 1;

dealer_vals = randi(13, 1, 1);
dealer_suits = randi(4, 1, 1) - 1;
BLACKJACK = 21;
DEALER_STAND = 17;
player_sprites = skip_sprites + 13 * card_suits + card_vals;
player_fill = ones(1,8);
dealer_sprites = skip_sprites + 13 * dealer_suits + dealer_vals;
blankcard = 3;
dealer_fill = ones(1,8);
drawScene(blackjack_scene, [dealer_sprites, blankcard, dealer_fill; 1,1,1,1,1,1,1,1,1; player_sprites, player_fill])
i=1;
dealer_val = sum(dealer_vals);
hand_val = sum(card_vals);
while 1
    for k = 1:length(card_vals)
        if card_vals(k) > 10
            card_vals(k) = 10;
        end
        if card_vals(k) == 1
            ace_check = input('Would you like the ace to be worth 1 or 11?', 's');
            ace_check = str2double(ace_check);
            card_vals(i) = ace_check;
        end
    end
    if hand_val > BLACKJACK
        fprintf('You busted good try')
        break
    end
    fprintf('Do you want to hit? (space bar = hit, backspace = stay)\n')
    key = getKeyboardInput(blackjack_scene);

    pause(0.5);

    title(key);

    if strcmp(key, 'space')
        card_vals = [card_vals, randi(13)];
        card_suits = [card_suits, randi(4) - 1];
        player_fill = ones(1,8-i);
        player_sprites = skip_sprites + 13 * card_suits + card_vals;
        drawScene(blackjack_scene, [dealer_sprites, blankcard, dealer_fill; 1,1,1,1,1,1,1,1,1; player_sprites, player_fill])
        i=i+1;
    elseif strcmp(key, 'backspace')
        fprintf("Player Stays. \n")
        break
    end
end
while 1
    dealer_vals = [dealer_vals, randi(13)];
    dealer_suits = [dealer_suits, randi(4) - 1];
    dealer_sprites = skip_sprites + 13 * dealer_suits + dealer_vals;
    n=0;
    dealer_fill= ones(1,8);
    drawScene(blackjack_scene, [dealer_sprites, dealer_fill; 1,1,1,1,1,1,1,1,1; player_sprites, player_fill])
    if dealer_val > card_vals
        fprintf('Dealer Wins!')
        break
    elseif dealer_val < DEALER_STAND || (dealer_val < hand_val && hand_val < BLACKJACK)
        dealer_vals = [dealer_vals, randi(13)];
        dealer_suits = [dealer_suits, randi(4) - 1];
        dealer_sprites = skip_sprites + 13 * dealer_suits + dealer_vals;
        dealer_fill= ones(1,7);
        drawScene(blackjack_scene, [dealer_sprites, dealer_fill; 1,1,1,1,1,1,1,1,1; player_sprites, player_fill])
        n=n+1;
        break
    end
end
if hand_val > 21
    fprintf('Player Busted! Better luck next time :(\n');
    winner = 'Dealer';
elseif dealer_val > 21
    fprintf('Dealer Busted! Congratulations, you win!\n');
    winner = 'Player';
end

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elseif hand_val > dealer_val
    fprintf('Congratulations, you win!\n');
    winner = 'Player';
elseif hand_val < dealer_val
    fprintf('Sorry, you lose. Dealer wins.\n');
    winner = 'Dealer';
else
    fprintf('It's a tie!\n');
    winner = 'Tie';
end

fprintf('The winner is: %s\n', winner);

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You busted good tryPlayer Busted! Better luck next time :(  
The winner is: Dealer

