```matlab
clc,clear
%% Hangman
%Display welcome message
fprintf('Welcome to Hangman, Have Fun')
%Set P = 1, so that the game begins, When P does not equal 1, the game will
%register as over ( this allows for the user to play multiple games)
P = 1;
while P == 1
%List of strings, of different categories
T = input('\nplease pick your topic number (1)cities (2)food (3)animals: \n');
a = ["INDIANAPOLIS","DENVER","PHILADELPHIA","JACKSONVILLE","COLUMBUS","NASHVILLE","↙
PORTLAND","LOUISVILLE","ALBUQUERQUE","PITTSBURGH","CINCINNATI","HOUSTON","ATLANTA","↙
AUSTIN","DALLAS","MILWAUKEE","TORONTO","SACRAMENTO","SEATTLE","CHICAGO","CLEVELAND","↙
BOSTON"];
b = ["PIZZA","MEATLOAF","SANDWICH","STEAK","SPAGHETTI","PANCAKES","PEPPERONI","POPCORN","↙
EGGPLANT","CANTALOUPE","MACARONI","BURRITO","SAUSAGE","CHEESESTEAK","CHEESEBURGER","↙
CHURRO","LASAGNA","CALAMARI","CAULIFLOWER"];
c = ["CHICKEN","TURTLE","JAGUAR","RHINOCEROS","CHIMPANZEE","HEDGEHOG","PANTHER","↙
OCTOPUS","POLARBEAR","KANGAROO","GIRAFFE","FLAMINGO","HIPPOPOTAMUS","PENGUIN"];
%Once a category is picked, Randomly select a number within the length of
% the string vector
while (T~=1)|(T~=2)|(T~=3)
if T == 1;
    disp('Good choice, loading cities')
    C = randi(length(a));
    break
elseif T == 2;
    disp('Good choice, loading food')
    C = randi(length(b));
    break
elseif T == 3;
    disp('Good choice, loading animals')
    C = randi(length(c));
    break
else
%This will display, if the person enters something that doesn't align with
%a catevgory
    T= input('Please enter a valid number:')
end
end
%Once a random number is selected, a Word is picked from the specific string vector
if T==1;
    Word=a(C);
elseif T==2;
    Word=b(C);
elseif T==3;
    Word=c(C);
end
%word is formulated from the components of the string
NewWord = char(Word);
word = NewWord;
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%The lenght of the word is displayed as hidden letters "-" in listword
L=length(word);
i=1:L;
listword(i) = '-';
listword
%Set initial number of lives in game
Lives = 6;
fprintf('You have %.i lives remaining', Lives)
GuessedWord = listword;
%player may continually guess as long as they have a life remaining
while Lives>0
%Player inputs their guess, to see if it is in the word
    guess=input('\nGuess a letter:', 's');
%The Next few lines of code are simply making it so the player may guess an
%upper or lowercase letter
        if guess == "a"
            guess = "A";
        elseif guess =="b"
            guess ="B";
        elseif guess =="c"
            guess ="C";
        elseif guess =="d"
            guess ="D";
        elseif guess =="e"
            guess ="E";
        elseif guess =="f"
            guess ="F";
        elseif guess =="g"
            guess ="G";
        elseif guess =="h"
            guess ="H";
        elseif guess =="i"
            guess ="I";
        elseif guess =="j"
            guess ="J";
        elseif guess =="k"
            guess ="K";
        elseif guess =="l"
            guess ="L";
        elseif guess =="m"
            guess ="M";
        elseif guess =="n"
            guess ="N";
        elseif guess =="o"
            guess ="O";
        elseif guess =="p"
            guess ="P";
        elseif guess =="q"
            guess ="Q";
        elseif guess =="r"
            guess ="R";
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```matlab
        elseif guess =="s"
            guess ="S";
        elseif guess =="t"
            guess ="T";
        elseif guess =="u"
            guess ="U";
        elseif guess =="v"
            guess ="V";
        elseif guess =="w"
            guess ="W";
        elseif guess =="x"
            guess ="X";
        elseif guess =="y"
            guess ="Y";
        elseif guess =="z"
            guess ="Z";
        end
%The guess is checked with every individual letter in the string
        for i=1:length(word);
            NewWord = NewWord;
%If the guessed letter is in a specific spot of the word...
        if guess == word(i);
            NewWord(i)=guess;
            i;
            j = i;
%At the point where the guess is equal to the word, it will display on
%"GuessedWord", along with "-" for every spot that isnt guessed
            GuessedWord(j) = NewWord(j)
        else
            NewWord(i)='-';
        end
        end
                Loss = contains(NewWord,guess);
% If the player's guess is not in the word, they are wrong, and they lose a
% life
        if Loss == 0
            Lives = Lives-1;
            fprintf('You have %.i lives remaining', Lives)
        end
    GuessedWord
%Once the Player has guessed every letter in the word, they win
    if GuessedWord == Word
        fprintf('Congratulations, You Win')
%Remember, if P=1 the game will cycle again, therefore if the player
%presses 1 to play again, the process will restart
        P = input('\nWould You like to play again, (1)Yes (2)No:');
        break
    end
end
if Lives == 0
%Once You run out of lives, You lose, and the full word is displayed
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```matlab
    fprintf('\nSorry, you lose')
    fprintf('\nThe word was %s', word)
%Remember, if P=1 the game will cycle again, therefore if the player
%presses 1 to play again, the process will restart
P = input('\nWould You like to play again, (1)Yes (2)No:');
end
end
```