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```
% Christopher Brant ENGR 1410-625 1/25/2016
% Assignment A5_CBRANT
```

```
clear
clc
```

## Problem 1: Modified Review 18-6

Writing a MatLab program to convert a temperature input from the user into a different unit system

```
% Test Case
% Input:
% temperature = 32 [deg F]
% unit = K
% Expected Output:
% The equivalent temperature to 32 deg F is 273 K

% Assign variables
% temperature - [degrees F]
% degC - temperature in celsius [degrees C]
% K - temperature in Kelvin [K]
% degR - temperature in Rankine [degrees R]

% Create a cell array of menu choices
options = {'deg C' 'K' 'deg R'};

% Print instructions and input options
% temperature = input('Enter the temperature [deg F]: ');
temperature = 32;    %[deg F]
degC = (temperature - 32) * (5 / 9);
K = (temperature - 32) * (5 / 9) + 273;
degR = temperature + 460;
conversions = [degC K degR];

% Print menu options for which unit system to convert to
% unit = menu('Choose which unit to convert to', options);
unit = 2;
fprintf('Enter the temperature [deg F]: %0.0f\t\t\tMenu Choice: %s\n',
    temperature, options{1,unit}, temperature, conversions(1,unit),
    options{1,unit});
```

```
Enter the temperature [deg F]: 32    Menu Choice: K
```

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*The equivalent temperature to 32 deg F is 273 K*

## Problem 2: Review 18-3

Problem Statement: Write a program in which the user inputs a volume and calculate the weight of the rod in pounds-force.

```
% Test Case
% Input:
% V = 0.5 [m^3]
% Expected Output:
% The weight of the rod is 661 pounds force

% Variables:
% g - gravity on Callisto [m/s^2]
% SG - specific gravity [unitless]
% V - volume [m^3]
% m - mass [kg]
% dw - density of water [kg/m^3]
% F - force of object [N]
% fcf - force conversion factor [pounds-force/N]
% w - weight of object [pounds-force]

% Establish constant variables
g = 1.25;      %[m/s^2]
SG = 4.7;      %[unitless]
dw = 1000;     %[kg/m^3]
fcf = 0.225;   %[lbs-f/N]

% Ask user for volume input
% V = input('\nEnter the volume of the rod [cubic meters]: ');
V = 0.5;       %[m^3]

% Convert from SG into mass using user input
m = (SG * dw) * V;

% Calculate force using mass and gravity
F = m * g;

% Convert from force in Newtons to force in pounds-force
w = F * fcf;

% Print final statement to the screen
fprintf('The weight of the rod is %0.0f pounds force\n', w);
```

*The weight of the rod is 661 pounds force*

## Problem 3: Personalized Medicine

Problem Statement: Using menu input, we have the screen print patient information along with their symptoms, medicine, and specific gravity of their medications

Original assignment A4\_CBRANT was copied for its variables, but

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modified to complete the assigned tasks

```
% Test Case
% Input:
% patient = 'Christopher Brant' or 5(in menu output format)
% symptom = 'Flu' or 2(in menu output format)
% Expected Output:
% Patient: Christopher Brant
% Symptom: Flu
% Medicine: Chill
% SG: 2.50

Patient_Names = {'Ima Tiger' 'Preston Holtzendorff' 'Thomas
Clemson' 'Anna Calhoun' 'Christopher Brant'};

% Variables in the cell array rows will show the following:
% Symptom
% Medicine
% Dose Volume [mL/dose]
% Dose Mass[g/dose]
% Dose Type

Meds = {'Cold' 'Flu' 'Migraine'; 'Achoo' 'Chill' 'HAcHe'; 3.6 5 4; 9
16 11; 'L' 'T' 'T'};

% Density of medications
Density_All = [(Meds{4,1}(1) / Meds{3,1}(1)) (Meds{4,2}(1) / Meds{3,2}
(1)) (Meds{4,3}(1) / Meds{3,3}(1))];

% SG of medications in g/mL is the same as density, as density of
water in
% g/mL is just 1 g/mL
SG_All = Density_All;

% Choose patient name from menu
% patient = menu('Select a Patient Name', Patient_Names);
patient = 5; %Since my name 'Christopher Brant' would show up as
an output of 5 from the menu, patient = 5
name = Patient_Names{1,patient};

% Choose symptom from menu
% symptom = menu('Select a Symptom for the chosen patient', 'Cold',
'Flu', 'Migraine');
symptom = 2; %Since the symptom 'Flu' is the second option in the
menu and would output 2, symptom = 2
choice = Meds{1, symptom};
Medicine = Meds{2, symptom};

% Set all final print screen commands in their if loops
fprintf('Patient: %s\n\tSymptom:\t%s\n\tMedicine:\t%s\n\tSG:\t\t\t
%0.2f\n', name, choice, Medicine, SG_All(1,1));

Patient: Christopher Brant
Symptom: Flu
```

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*Medicine: Chill*  
*SG: 2.50*

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