```
% NAME: ADITYA BARMAN
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% PROBLEM 4. Variance with Frequency


clc, clearvars, close all

f = [15, 20, 30, 18, 12, 5];
f_total = 0;
f_m_total = 0;

up_bd = [23, 28, 33, 38, 43, 48];
lw_bd = [19, 24, 29, 34, 39, 44];
midpts = ((up_bd + lw_bd)/2);
f_m = f .* midpts;

for i = 1:6
    f_total = f_total + f(i);
    f_m_total = f_m_total + f_m(i);
end

mean_value = (f_m_total/f_total);

midpt_x = zeros(1, 6);

for j = 1:6
    m_sub_x = (midpts(j) - mean_value);
    midpt_x(j) = m_sub_x;
end

midpt_x_sq = midpt_x .* midpt_x;
f_m_x = zeros(1, 6);

for k = 1:6
    f_m_x_val = f(k)*midpt_x_sq(k);
    f_m_x(k) = f_m_x_val;
end

f_m_x_total = 0;

for z = 1:6
    f_m_x_total = f_m_x_total + f_m_x(z);
end

variance = (f_m_x_total/f_total);

fprintf('The age of persons and number of persons is given below\n\n');
```

```
48 % Print the table headers
49 fprintf('%-10s %-20s\n', 'Age of Persons', 'Number of Persons');
50
51 % Print the table values
52 for i = 1:length(lw_bd)
53     fprintf('%-2d - %-2d\t\t\t%-10d\n', lw_bd(i), up_bd(i), f(i));
54 end
55
56 fprintf('\nVariance of the data is: %.4f\n', variance);
57
58
59 % ============================ OUTPUT =====================
60
61 % The age of persons and number of persons is given below
62 %
63 % Age of Persons Number of Persons
64 % 19 - 23           15
65 % 24 - 28           20
66 % 29 - 33           30
67 % 34 - 38           18
68 % 39 - 43           12
69 % 44 - 48           5
70 %
71 % Variance of the data is: 47.6275
72
73 % ========================================================
```