# EXPERIMENT - 9

## APPLIED MATHEMATICS LAB

### Aim

To find mean, standard deviation and moments about mean of a given frequency data.

Syeda Reeha Quasar
14114802719
4C7

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## Aim:

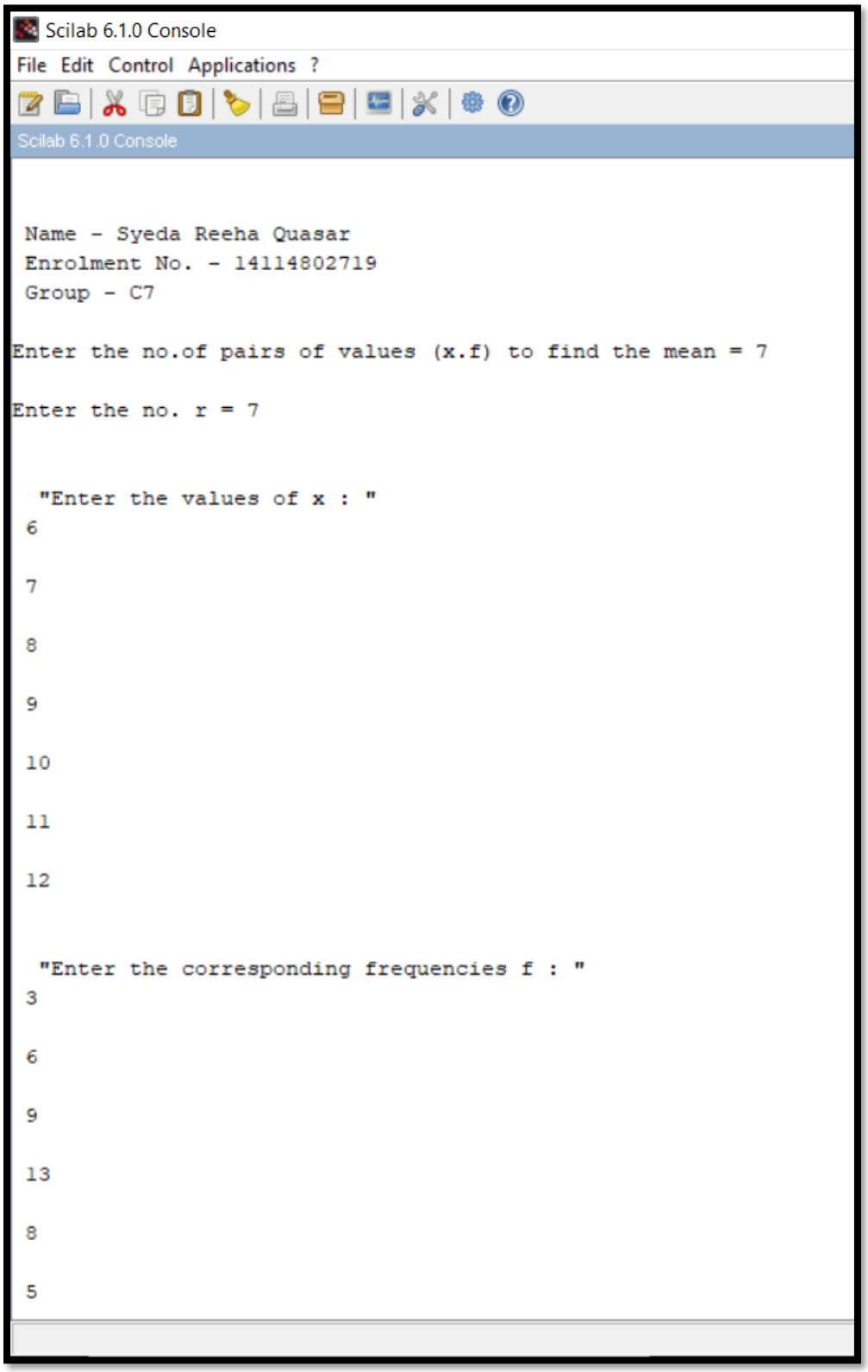
To find mean, standard deviation and moments about mean of a given frequency data.

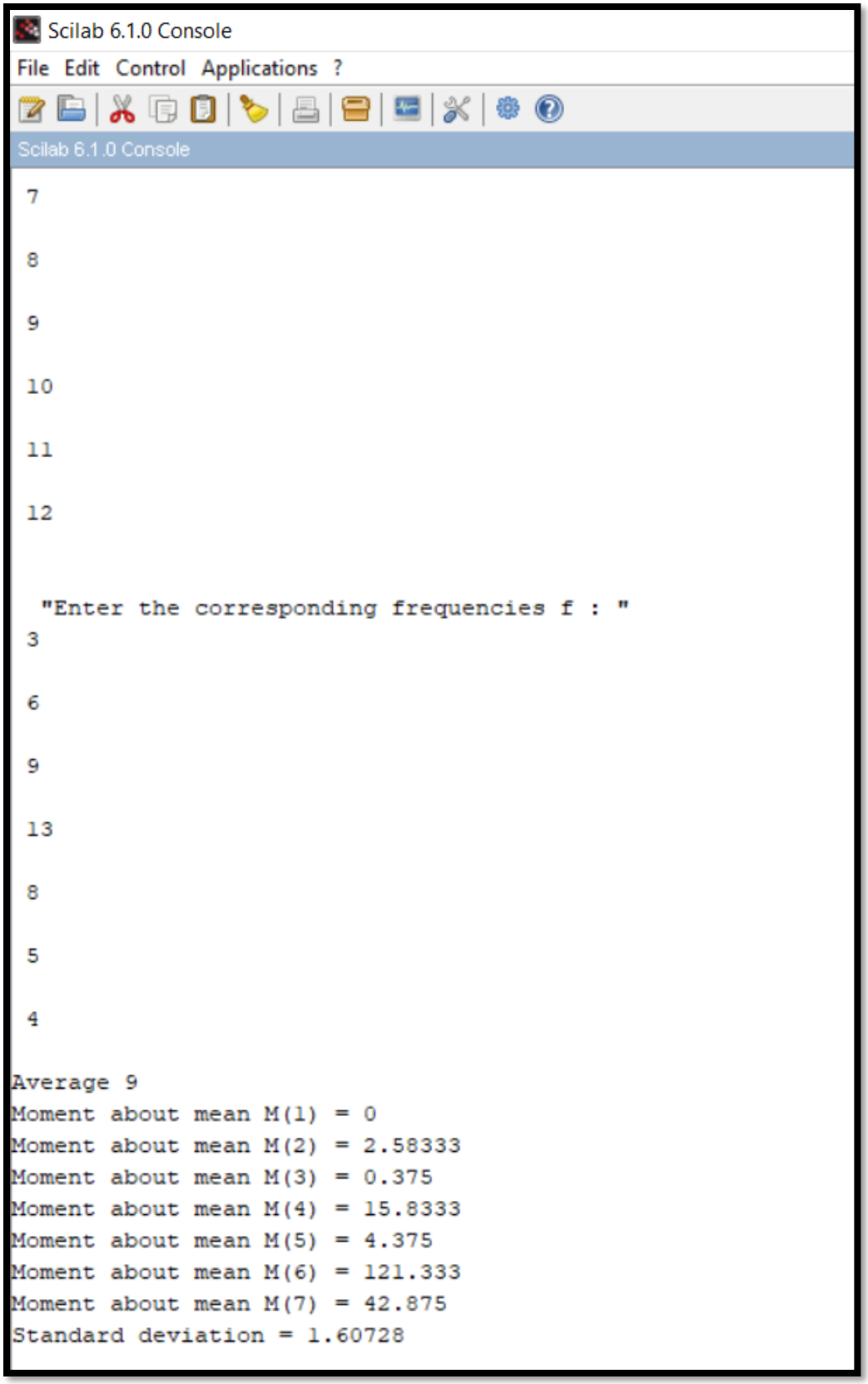
## Source Code:

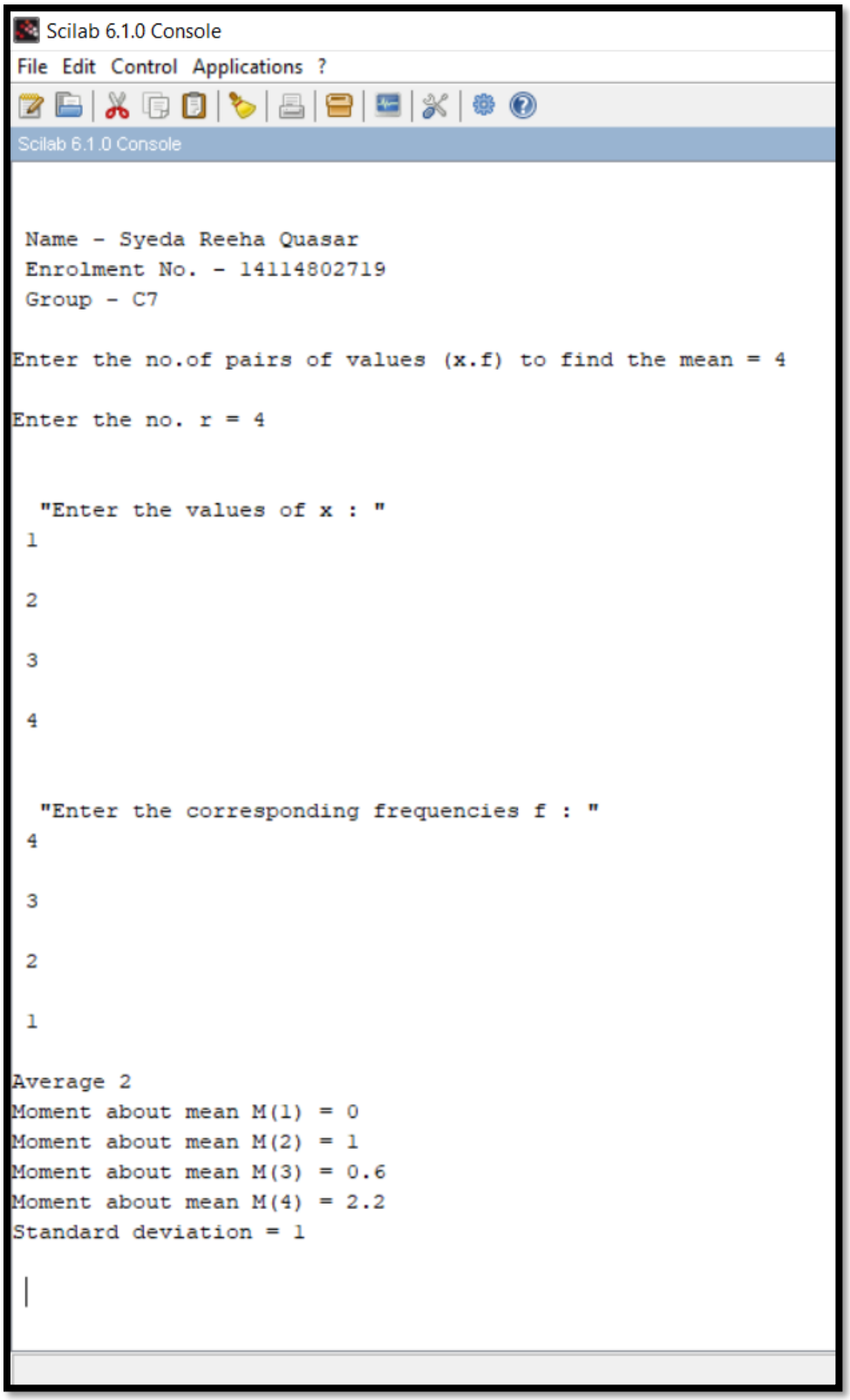
```
//Program to find mean,S.D. and first r moments about mean of given n pairs (x)
clc;clear;close;

clc

printf('\n\n Name - Syeda Reeha Quasar \n Enrolment No. - 14114802719 \n
Group - C7 \n\n')

n = input('Enter the no.of pairs of values (x.f) to find the mean = ')
m = input('Enter the no. r = ')

disp('Enter the values of x : ')

for i = 1:n
   x(i) = input(' ')
end

disp('Enter the corresponding frequencies f : ')

for i=1:n
   f(i) = input(' ')
end

s = 0
s1 = 0

for i=1:n
   s = s + f(i) //Calculate the sum of all frequencies
```

```
   s1 = s1 + f(i)*x(i) // Calculate the sum of all f(i)x(i)
end

A = s1/s  //Calculate the average

printf('Average %g\n', A);

for j = 1:m
   s2 = 0
   for i=1:n
      y(i) = f(i)*(x(i)-A)^j
      s2 = s2 + y(i)
   end;
   M(j) = (s2/s) //Calculate the moments
   printf('Moment about mean M(%i) = %g\n', j, M(j))
end

sd = sqrt(M(2)) //Calculate the standard deviation

printf('Standard deviation = %g\n', sd);
```

## Output:


Scilab 6.1.0 Console
File Edit Control Applications ?
Scilab 6.1.0 Console
Name - Syeda Reeha Quasar
Enrolment No. - 14114802719
Group - C7
Enter the no.of pairs of values (x.f) to find the mean = 7
Enter the no. r = 7
"Enter the values of x : "
6
7
8
9
10
11
12
"Enter the corresponding frequencies f : "
3
6
9
13
8
5


Scilab 6.1.0 Console
File Edit Control Applications ?
Scilab 6.1.0 Console
7
8
9
10
11
12
"Enter the corresponding frequencies f : "
3
6
9
13
8
5
4
Average 9
Moment about mean M(1) = 0
Moment about mean M(2) = 2.58333
Moment about mean M(3) = 0.375
Moment about mean M(4) = 15.8333
Moment about mean M(5) = 4.375
Moment about mean M(6) = 121.333
Moment about mean M(7) = 42.875
Standard deviation = 1.60728


Scilab 6.1.0 Console
File Edit Control Applications ?
Scilab 6.1.0 Console
Name - Syeda Reeha Quasar
Enrolment No. - 14114802719
Group - C7
Enter the no.of pairs of values (x.f) to find the mean = 4
Enter the no. r = 4
"Enter the values of x : "
1
2
3
4
"Enter the corresponding frequencies f : "
4
3
2
1
Average 2
Moment about mean M(1) = 0
Moment about mean M(2) = 1
Moment about mean M(3) = 0.6
Moment about mean M(4) = 2.2
Standard deviation = 1