

Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA Batch - 41
PNS Practical 1

1.1 Write a program to find a factorial

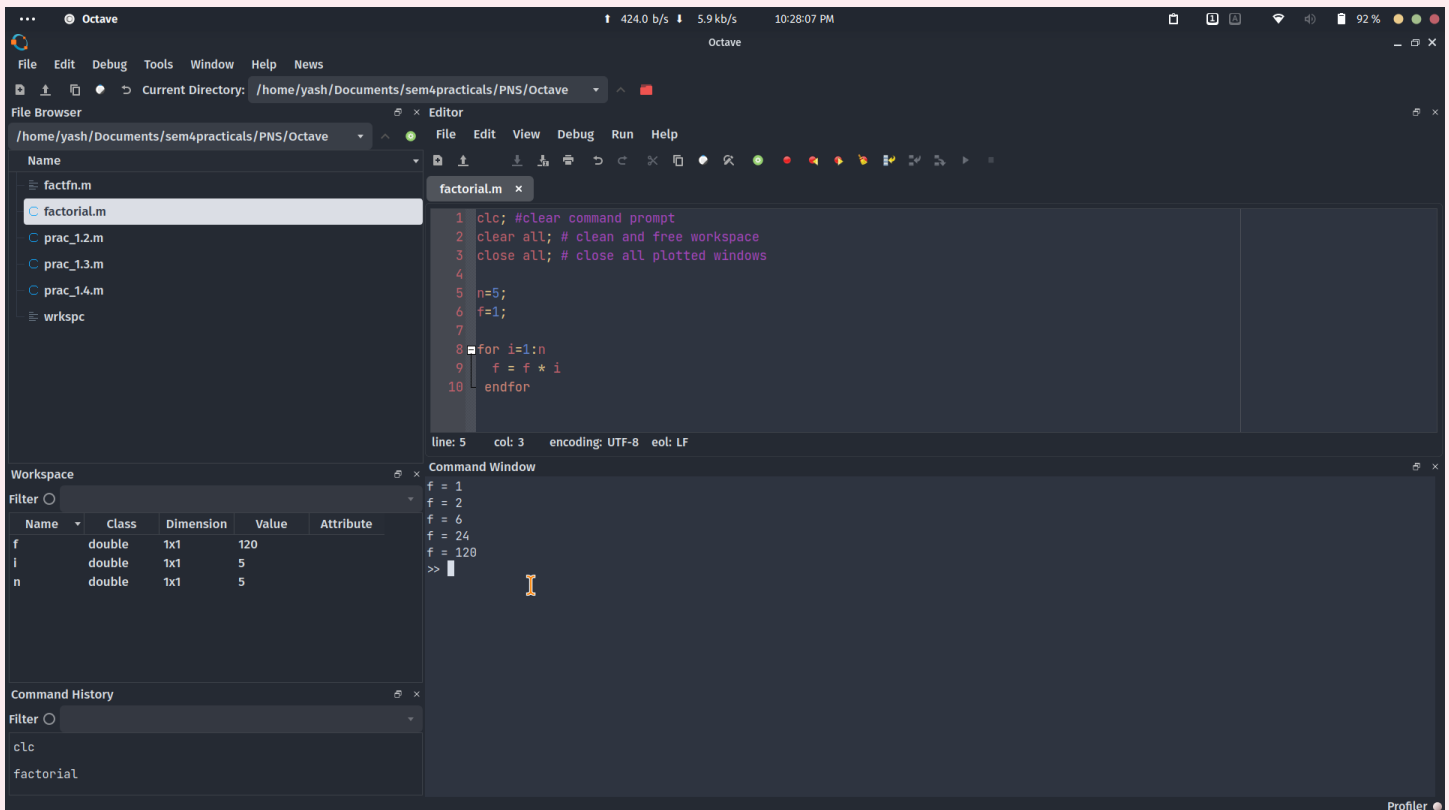
Code :

```
clc; #clear command prompt
clear all; # clean and free workspace
close all; # close all plotted windows

n=5;
f=1;

for i=1:n
    f = f * i
endfor
```

Output :



The screenshot shows the Octave IDE interface. The editor window displays the following code:

```
1 clc; #clear command prompt
2 clear all; # clean and free workspace
3 close all; # close all plotted windows
4
5 n=5;
6 f=1;
7
8 for i=1:n
9     f = f * i
10 endfor
```

The Command Window shows the output of the execution:

```
f = 1
f = 2
f = 6
f = 24
f = 120
f = 120
>>
```

The Workspace window shows the variables defined in the script:

Name	Class	Dimension	Value	Attribute
f	double	1x1	120	
i	double	1x1	5	
n	double	1x1	5	

The Command History window shows the commands entered:

```
clc
factorial
```

Name - Yash Lakhtariya

Enrollment number - 21162101012

Branch - CBA Batch - 41

PNS Practical 1

1.2 Make a user defined function that find factorial of given number

Code :

File - factfn.m

```
function[fact] = factfn(n)
    fact =1;
    for i = 1:n
        fact = fact * i;
    endfor
endfunction
```

File - prac_1.2.m

```
clc;
clear all;
close all;

n = input('Enter value of n : ');

fact = factfn(n);

printf('The value of %d! is %d\n', n, fact)
```

Output :

Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA Batch - 41
PNS Practical 1

The screenshot shows the Octave IDE interface. The File Browser on the left lists files: factfn.m, factorial.m (selected), prac_1.2.m, prac_1.3.m, prac_1.4.m, and wrkspc. The Editor window displays the factorial.m script:

```
1 clc; #clear command prompt
2 clear all; # clean and free workspace
3 close all; # close all plotted windows
4
5 n=5;
6 f=1;
7
8 for i=1:n
9     f = f * i
10 endfor
```

The Command Window shows the execution results:

```
f = 1
f = 2
f = 6
f = 24
f = 120
>>
```

The Workspace window shows the following variables:

Name	Class	Dimension	Value	Attribute
f	double	1x1	120	
i	double	1x1	5	
n	double	1x1	5	

The Command History window shows the commands: clc and factorial.

The screenshot shows the Octave IDE interface. The File Browser on the left lists files: factfn.m, factorial.m, prac_1.2.m, prac_1.3.m, prac_1.4.m (selected), and wrkspc. The Editor window displays the prac_1.4.m script:

```
1 clc;
2 clear all;
3 close all;
4
5 n = input('Enter value of n : ');
6
7 fact = factfn(n);
8
9 printf('The value of %d! is %d\n', n, fact)
```

The Command Window shows the execution results:

```
Enter value of n : 6
The value of 6! is 720
>>
```

The Workspace window shows the following variables:

Name	Class	Dimension	Value	Attribute
ans	double	1x1	6	
fact	double	1x1	720	
n	double	1x1	6	

The Command History window shows the commands: factfn and clc.

Name - Yash Lakhtariya

Enrollment number - 21162101012

Branch - CBA Batch - 41

PNS Practical 1

1.3 Write a program to calculate permutation nPr

Code :

```
clc;
clear all;
close all;

n = input("Enter the number for calculating nPr : ");

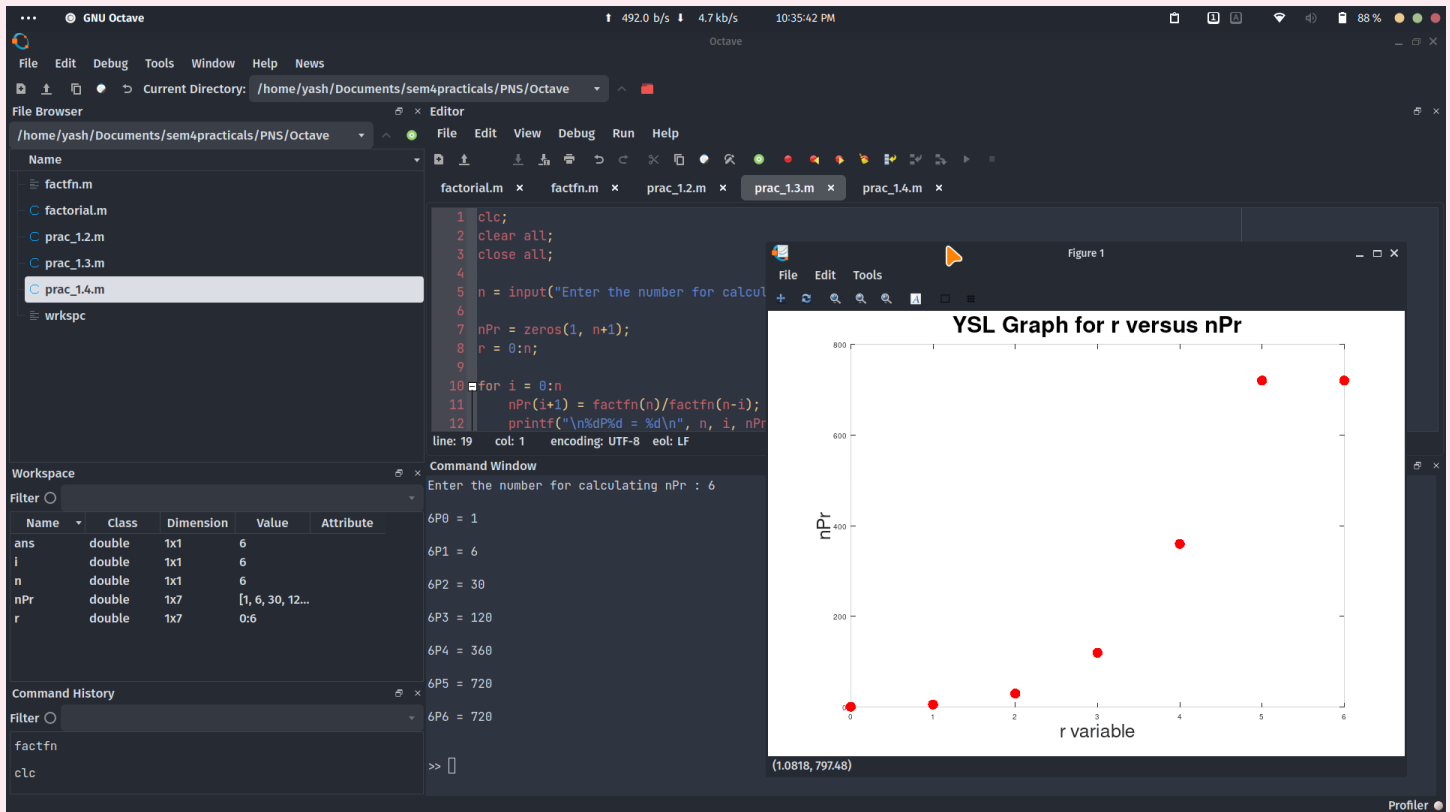
nPr = zeros(1, n+1);
r = 0:n;

for i = 0:n
    nPr(i+1) = factfn(n)/factfn(n-i);
    printf("\n%dP%d = %d\n", n, i, nPr(i+1));
endfor

plot(r, nPr, "r.", "Markersize", 30)
title("YSL Graph for r versus nPr", "fontsize", 30)
xlabel("r variable", "fontsize", 25)
ylabel("nPr", "fontsize", 25)
```

Output :

Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA Batch - 41
PNS Practical 1



1.4 Write a program to calculate combination nCr

Code :

```
clc;
clear all;
close all;

n = input("Enter the number for calculating nCr : ");

nCr = zeros(1, n+1);
r = 0:n;

for i = 0:n
    nCr(i+1) = factfn(n)/(factfn(n-i)*factfn(i));
```

Name - Yash Lakhtariya

Enrollment number - 21162101012

Branch - CBA Batch - 41

PNS Practical 1

```
        printf("\n%dC%d = %d\n", n, i, nCr(i+1));
    endfor

plot(r, nCr, "r.", "Markersize", 30)
title("YSL Graph for r versus nCr", "fontsize", 30)
xlabel("r variable", "fontsize", 25)
ylabel("nCr", "fontsize", 25)
```

Output :

