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Experiment 2

AIM :

Implementation of Conditional Branching and Looping in Scilab.

Code 1:

Write a program to find the Pythagorean triplet up to the number 50 or 20.

```

clc
for i=1:50
    for j=i+1:50
        c=(i*i)+(j*j)
        for k=i+2:50
            if c==(k*k)
                printf("\n")
                printf("Pythagorean Triplet is %d, %d, %d, \n", i,j,k);
            end
        end
    end
end
end
end

```

	<div data-bbox="315 212 1308 1192"> <div>Scilab 6.0.2 Console</div> <div> Pythagorean Triplet is 3, 4, 5, Pythagorean Triplet is 5, 12, 13, Pythagorean Triplet is 6, 8, 10, Pythagorean Triplet is 7, 24, 25, Pythagorean Triplet is 8, 15, 17, Pythagorean Triplet is 9, 12, 15, Pythagorean Triplet is 9, 40, 41, Pythagorean Triplet is 10, 24, 26, Pythagorean Triplet is 12, 16, 20, Pythagorean Triplet is 12, 35, 37, Pythagorean Triplet is 14, 48, 50, Pythagorean Triplet is 15, 20, 25, Pythagorean Triplet is 15, 36, 39, Pythagorean Triplet is 16, 30, 34, Pythagorean Triplet is 18, 24, 30, Pythagorean Triplet is 20, 21, 29, Pythagorean Triplet is 21, 28, 35, Pythagorean Triplet is 24, 32, 40, Pythagorean Triplet is 27, 36, 45, Pythagorean Triplet is 30, 40, 50, </div> </div>
Code 2:	<p>If $U_n=4(U_{n-1})+4$ and $U_0=4$, Print 20th term of the Sequence:</p> <pre> clc U=[4]; for n=1:19 U(n+1)=4*U(n)+4; end disp(U) printf("\n") printf("the 20th term is: ") disp(U(20)) </pre>

```
Scilab 6.0.2 Console ?

4.
20.
84.
340.
1364.
5460.
21844.
87380.
349524.
1398100.
5592404.
22369620.
89478484.
3.579D+08
1.432D+09
5.727D+09
2.291D+10
9.163D+10
3.665D+11
1.466D+12

the 20th term is:
1.466D+12

-->
```

Code 3:

Write a Scilab code to input a matrix and check whether the matrix is Symmetric, Skew Symmetric or none.

```
A = input("Enter the matrix: ");
[m, n] = size(A);
if m ~= n
    disp('Matrix must be square');
    return;
end
isSymmetric = isequal(A, A');
isSkewSymmetric = isequal(A, -A');

if isSymmetric
    disp('Matrix type: symmetric');
elseif isSkewSymmetric
    disp('Matrix type: skew-symmetric');
else
    disp('Matrix is neither symmetric nor skew-symmetric');
end
```

```
--> exec('D:\1.sce', -1)
Enter the matrix: [1 1 -1; 1 2 0; -1 0 5]

Matrix type: symmetric

-->
```

Code 4:

Write a Scilab code to input a matrix and check whether the matrix is Hermitian or not

```
A = [1 2+3*%i 3-4*%i; 2-3*%i 5 6+7*%i; 3+4*%i 6-7*%i 8];
```

```
if A == A' then
    disp("The input matrix is Hermitian.");
else
    disp("The input matrix is not Hermitian.");
end
```

```
--> exec('D:\1.sce', -1)

The input matrix is Hermitian.

-->
```

Code 5:

Write a Scilab code to input a matrix and check whether the matrix is invertible or not

```
B = [1,1 ; 2,2];
if B == ((-B)') then
    printf("It is Invertible \n");
else
    printf("It is not Invertible \n");
end

printf("\n");
```

```

Startup execution:
  loading initial environment

--> exec('D:\1.sce', -1)
It is not Invertible

-->

```

Code 6:

Write a program to find values for x=1 to 5 for $f(x)=x^2 + \sqrt{x}$ using for loop and while loop

```

clc;
printf("Write a program to find values for x=1 to 5 for  $f(x)=x^2 + \sqrt{x}$  using for and while loop.");
for x= 1:1:5
f(x)= x^2 + sqrt(x);
printf("\nThe value of f(x)= %f at x= %i',f(x),x )
end
//using while loop
printf("\n*****");
x=1;
while x<=5
f(x)= x^2 + sqrt(x);
printf("\nThe value of f(x)= %g at x= %i',f(x),x )
x=x+1;
end

```

```
Scilab 6.0.2 Console
Write a program to find values for x=1 to 5 for f(x)=x^2 + sqrt(x) using for and while loop.
The value of f(x)= 2.000000 at x= 1
The value of f(x)= 5.414214 at x= 2
The value of f(x)= 10.732051 at x= 3
The value of f(x)= 18.000000 at x= 4
The value of f(x)= 27.236068 at x= 5
*****
The value of f(x)= 2 at x= 1
The value of f(x)= 5.41421 at x= 2
The value of f(x)= 10.7321 at x= 3
The value of f(x)= 18 at x= 4
The value of f(x)= 27.2361 at x= 5
--> |
```

Code 7:

Display values from 10 to 20 using while loop

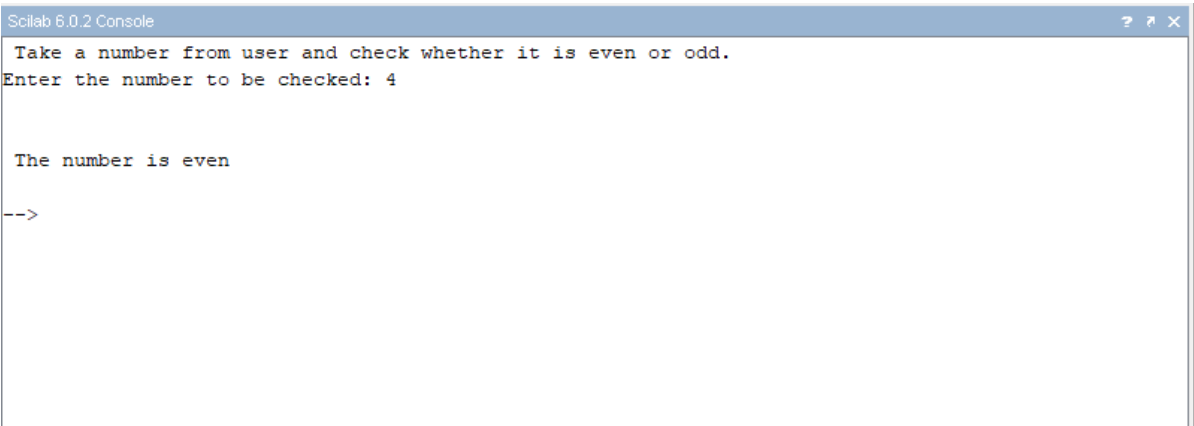
```
clc;
printf("Using while loop");
a=10;
while a<=20
printf("\nValue of a: %d",a);
a=a+1;
end
```

```
Scilab 6.0.2 Console
Using while loop
Value of a: 10
Value of a: 11
Value of a: 12
Value of a: 13
Value of a: 14
Value of a: 15
Value of a: 16
Value of a: 17
Value of a: 18
Value of a: 19
Value of a: 20
--> |
```

Code 8:

Take a number from user and check whether it is odd or even. (Use modulo command)

```
clc;
printf("Take a number from user and check whether it is even or odd.");
x=input("Enter the number to be checked: ")
if modulo(x,2)==0 then
disp("The number is even") ;
else
disp("The number is odd");
end
```



```
Scilab 6.0.2 Console
Take a number from user and check whether it is even or odd.
Enter the number to be checked: 4

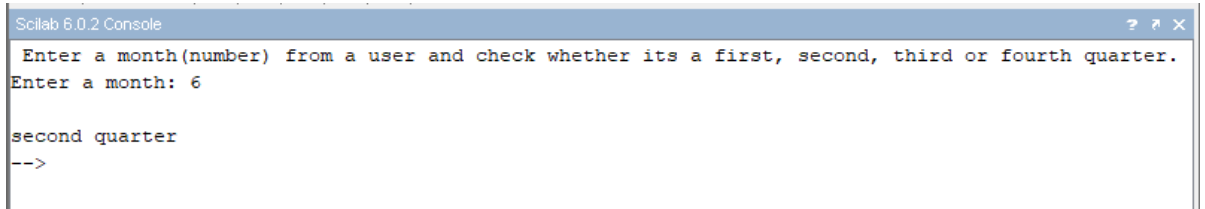
The number is even
-->
```

Code 9:

Enter a month (number) from a user and check whether it's a first, second, third and forth quarter

```
clc;
printf("Enter a month(number) from a user and check whether its a first, second, third or fourth quarter.");
month = input("Enter a month: ")
if month >=1 & month <=3
then
printf("first quarter");
elseif month >= 4 & month <= 6
then
printf("second quarter");
elseif month >= 7 & month <=9
then
printf("third quarter");
```

```
elseif month >= 10 & month <=12
then
printf("fourth quarter");
else
printf("Invalid month");
end
```



```
Scilab 6.0.2 Console
Enter a month(number) from a user and check whether its a first, second, third or fourth quarter.
Enter a month: 6

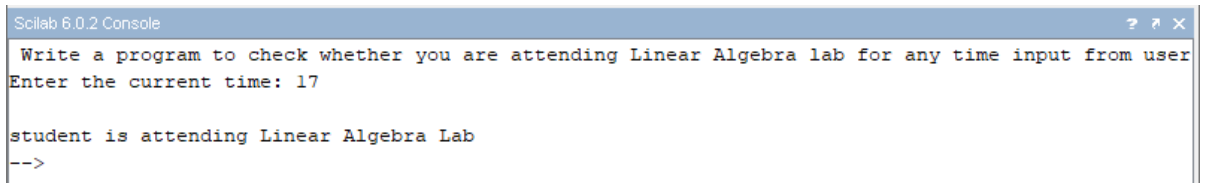
second quarter
-->
```

Code 10:

Write a program to check whether you are attending Linear Algebra lab for any time input from user.

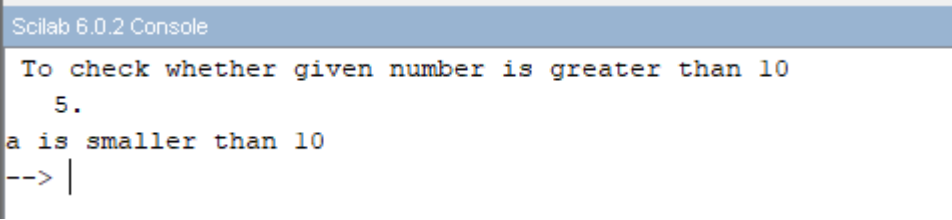
```
clc;
printf("Write a program to check whether you are attending Linear Algebra lab for any time
input from user.");

t=input("Enter the current time: ")
if t>16 & t<18
then
printf("student is attending Linear Algebra Lab");
else
printf("Student has finished Linear Algebra Lab")
end
```



```
Scilab 6.0.2 Console
Write a program to check whether you are attending Linear Algebra lab for any time input from user
Enter the current time: 17

student is attending Linear Algebra Lab
-->
```


Code 11:	<p>To check whether given number is greater than 10</p> <pre> clc; printf("To check whether given number is greater than 10"); a=5; disp(a); if a>10 then printf("a is more than 10"); else printf("a is smaller than 10"); end </pre> 
CONCLUSION:	<p>Hence, by completing this experiment I came to know about Implementation of Conditional Branching and Looping in Scilab.</p>