UPES

UNIVERSITY OF TOMORROW

Advanced Databases

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Course=BCA

Batch=3

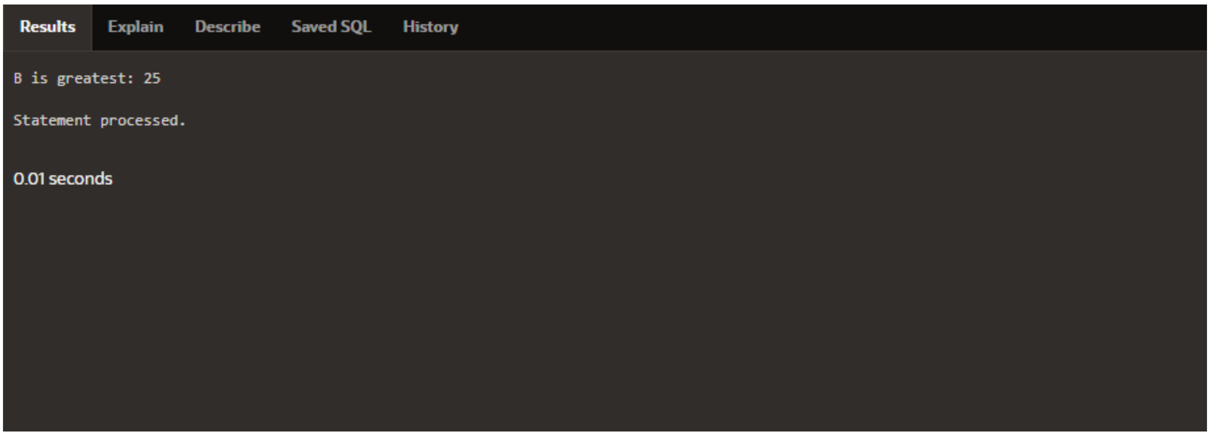
Experiment-:1

Q1=Write a PL/SQL code to accept the value of A, B & C display which is greater.

Code-:

```
DECLARE
   a NUMBER := 10;
   b NUMBER := 25;
   c NUMBER := 15;
BEGIN
   IF a > b AND a > c THEN
      DBMS_OUTPUT.PUT_LINE('A is greatest: ' || a);
   ELSIF b > a AND b > c THEN
      DBMS_OUTPUT.PUT_LINE('B is greatest: ' || b);
   ELSIF c > a AND c > b THEN
      DBMS_OUTPUT.PUT_LINE('C is greatest: ' || c);
   ELSE
      DBMS_OUTPUT.PUT_LINE('Two or more numbers are equal and greatest.');
   END IF;
END;
/
```

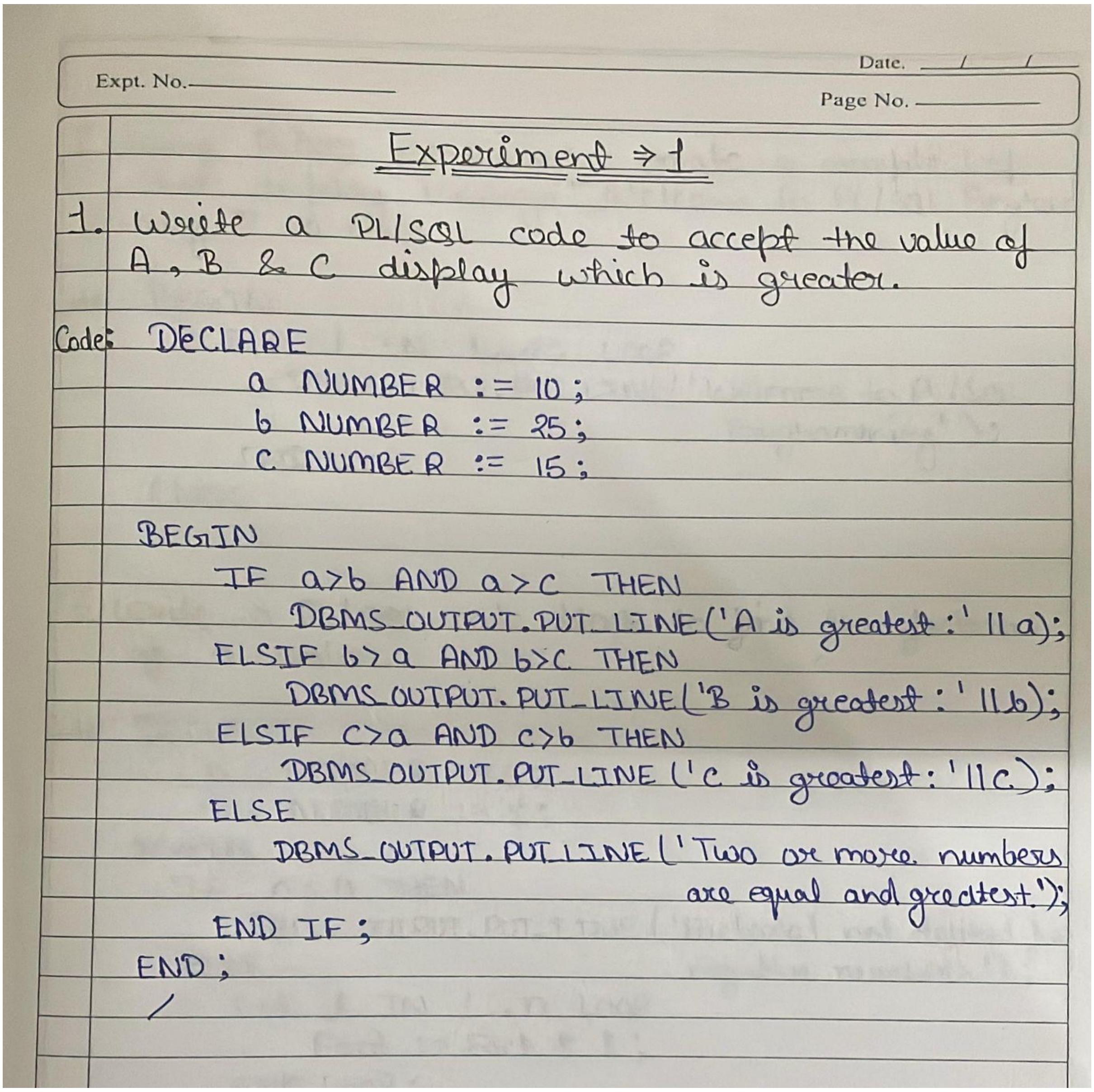
Output-:



```
B is greatest: 25

Statement processed.

0.01 seconds
```



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Experiment ⇒ 1

1. Write a PL/SQL code to accept the value of A, B & C display which is greater.

Code:

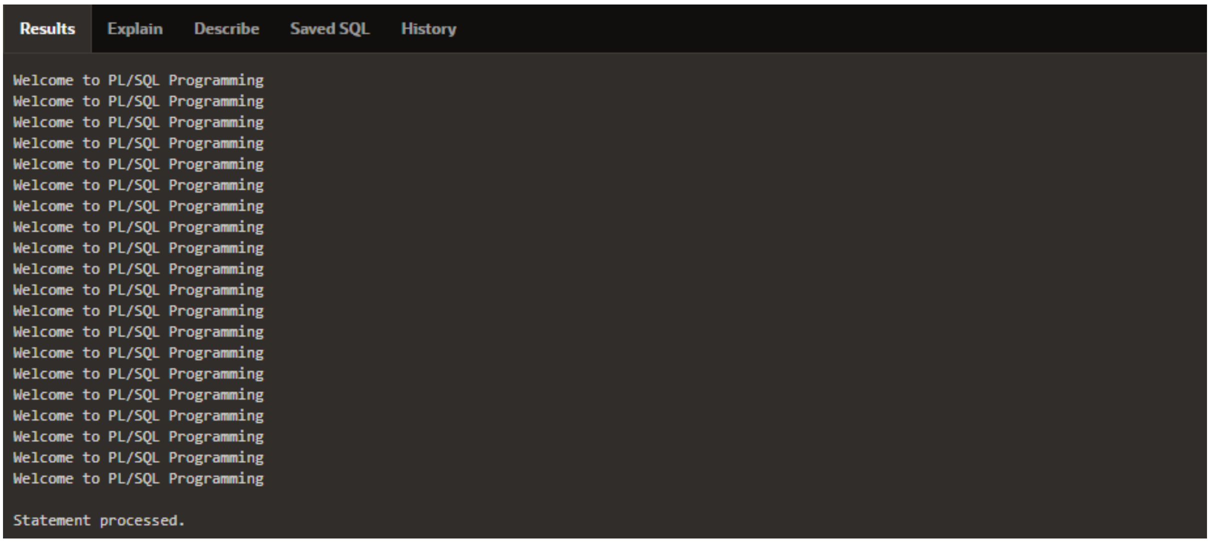
```
DECLARE
        a NUMBER := 10;
        b NUMBER := 25;
        c NUMBER := 15;

BEGIN
    IF a>b AND a>c THEN
        DBMS_OUTPUT.PUT_LINE('A is greatest:' || a);
    ELSIF b>a AND b>c THEN
        DBMS_OUTPUT.PUT_LINE('B is greatest:' || b);
    ELSIF c>a AND c>b THEN
        DBMS_OUTPUT.PUT_LINE('c is greatest:' || c);
    ELSE
        DBMS_OUTPUT.PUT_LINE('Two or more numbers
                                are equal and greatest.');
    END IF;
END;
/
```

Q2=Using PL/SQL Statements create a simple loop that display message “Welcome to PL/SQL Programming” 20 times.

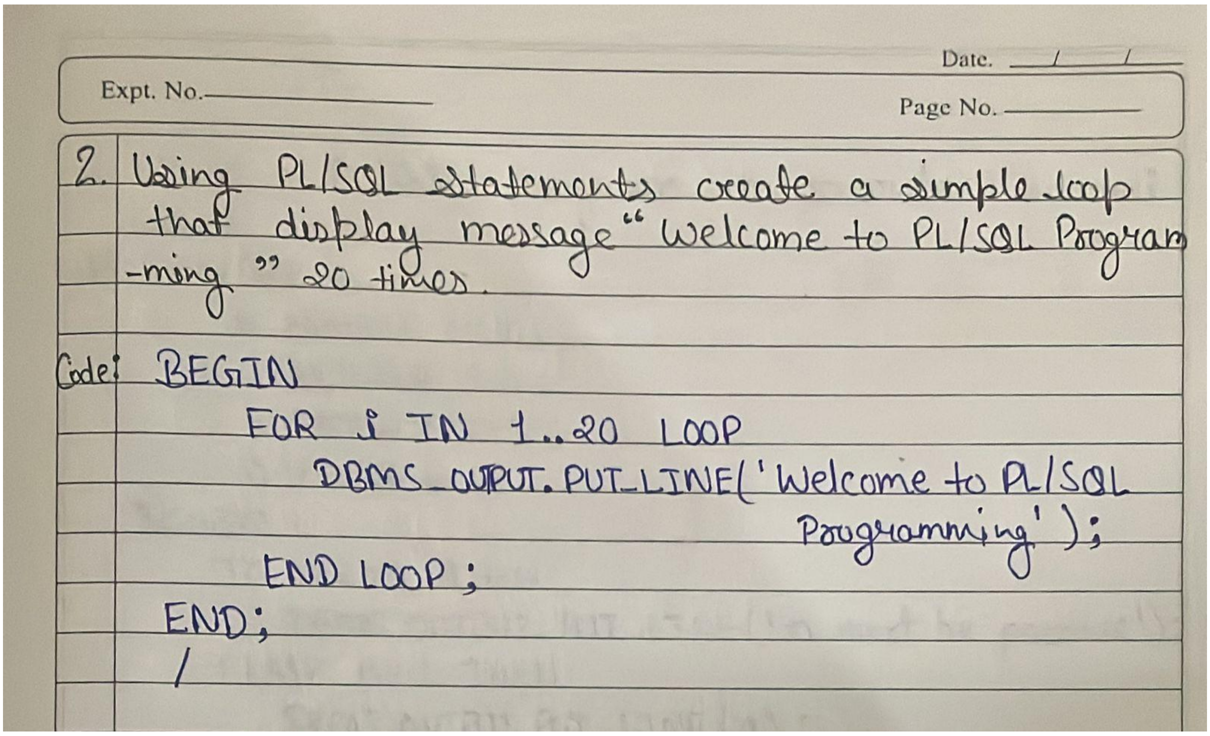
Code-:

```
BEGIN
  FOR i IN 1..20 LOOP
    DBMS_OUTPUT.PUT_LINE('Welcome to PL/SQL Programming');
  END LOOP;
END;
/
```

Output-:



```
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming

Statement processed.
```



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2. Using PL/SQL statements create a simple loop that display message "Welcome to PL/SQL Programming" 20 times.

Code:
```
BEGIN
        FOR i IN 1..20 LOOP
              DBMS_OUPUT.PUT_LINE('Welcome to PL/SQL
                                         Programming');
        END LOOP;
END;
/
```

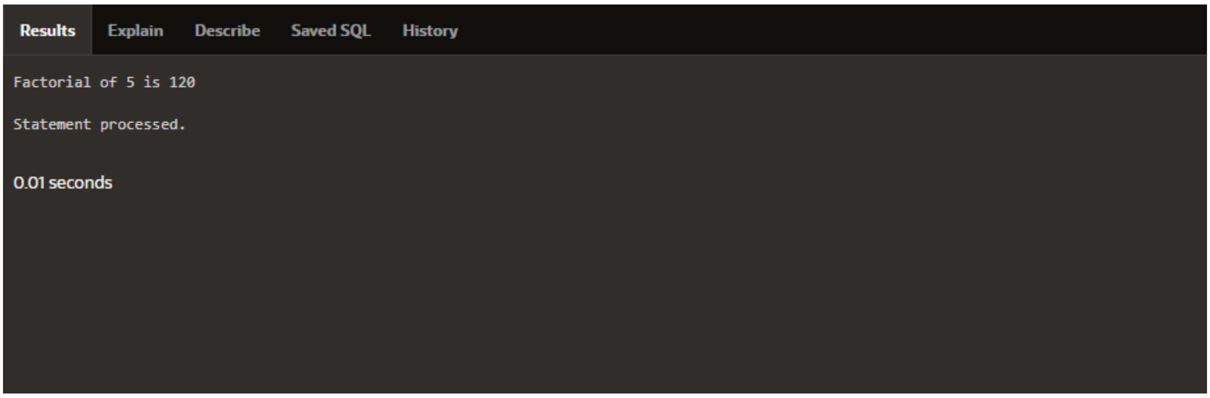
Q3=Write a PL/SQL code block to find the factorial of a number.

Code-:

```
DECLARE
  n    NUMBER := 5;
  fact NUMBER := 1;
BEGIN
```

```
  IF n < 0 THEN
    DBMS_OUTPUT.PUT_LINE('Factorial not defined for negative numbers');
  ELSE
    FOR i IN 1..n LOOP
      fact := fact * i;
    END LOOP;
    DBMS_OUTPUT.PUT_LINE('Factorial of ' || n || ' is ' || fact);
  END IF;
END;
/
```

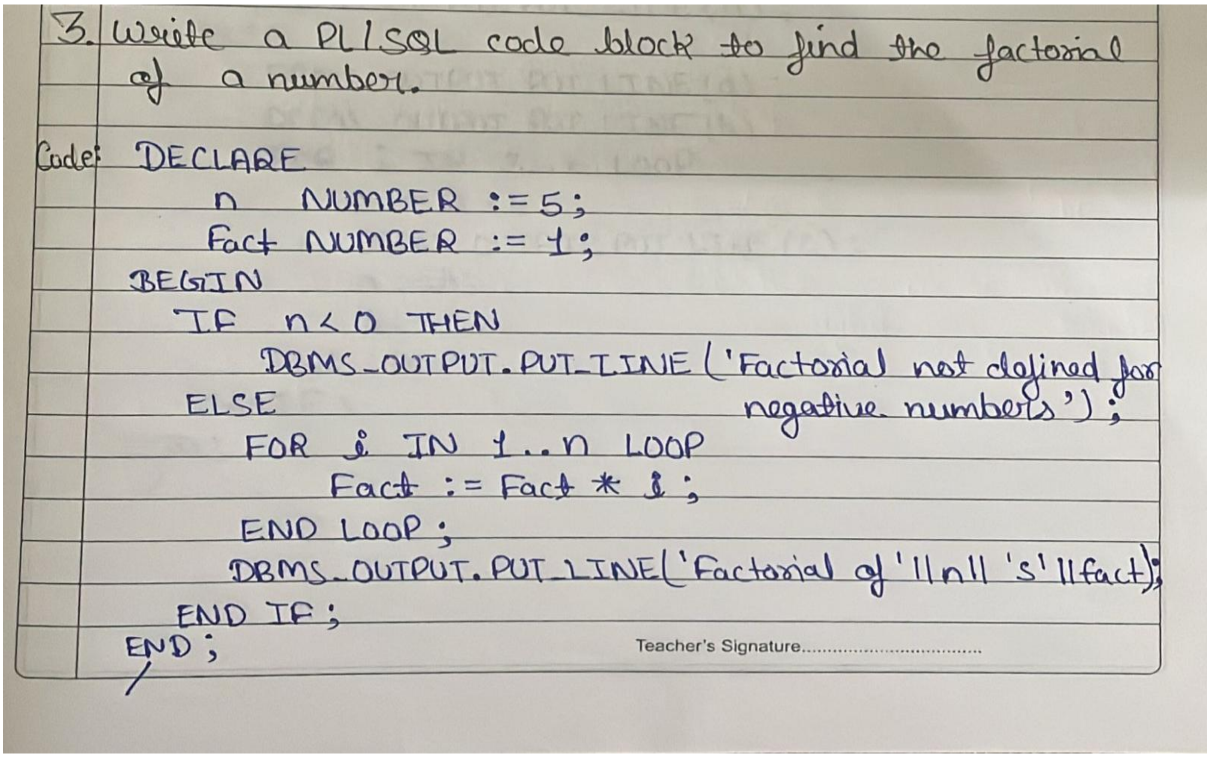
Output-:



```
Factorial of 5 is 120

Statement processed.

0.01 seconds
```



3. Write a PL/SQL code block to find the factorial of a number.

Code:
```
DECLARE
      n    NUMBER := 5;
      Fact NUMBER := 1;
BEGIN
   IF n<0 THEN
      DBMS_OUTPUT.PUT_LINE('Factorial not defined for
                                negative numbers');
   ELSE
      FOR i IN 1..n LOOP
         Fact := Fact * i;
      END LOOP;
      DBMS_OUTPUT.PUT_LINE('Factorial of'||n|| 's'||fact);
   END IF;
END;
/
```

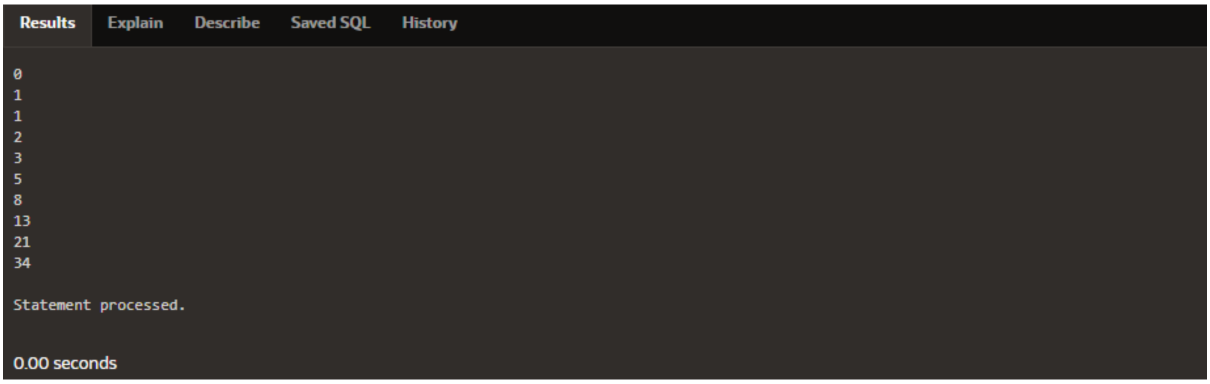
Teacher's Signature..................................

Q4=Write a PL/SQL program to generate Fibonacci series.

Code-:

```
DECLARE
  n NUMBER := 10;
  a NUMBER := 0;
  b NUMBER := 1;
  c NUMBER;
BEGIN
  IF n <= 0 THEN
    DBMS_OUTPUT.PUT_LINE('n must be positive');
  ELSIF n = 1 THEN
    DBMS_OUTPUT.PUT_LINE(a);
  ELSE
    DBMS_OUTPUT.PUT_LINE(a);
    DBMS_OUTPUT.PUT_LINE(b);
    FOR i IN 3..n LOOP
      c := a + b;
      DBMS_OUTPUT.PUT_LINE(c);
      a := b;
      b := c;
    END LOOP;
  END IF;
END;
/
```

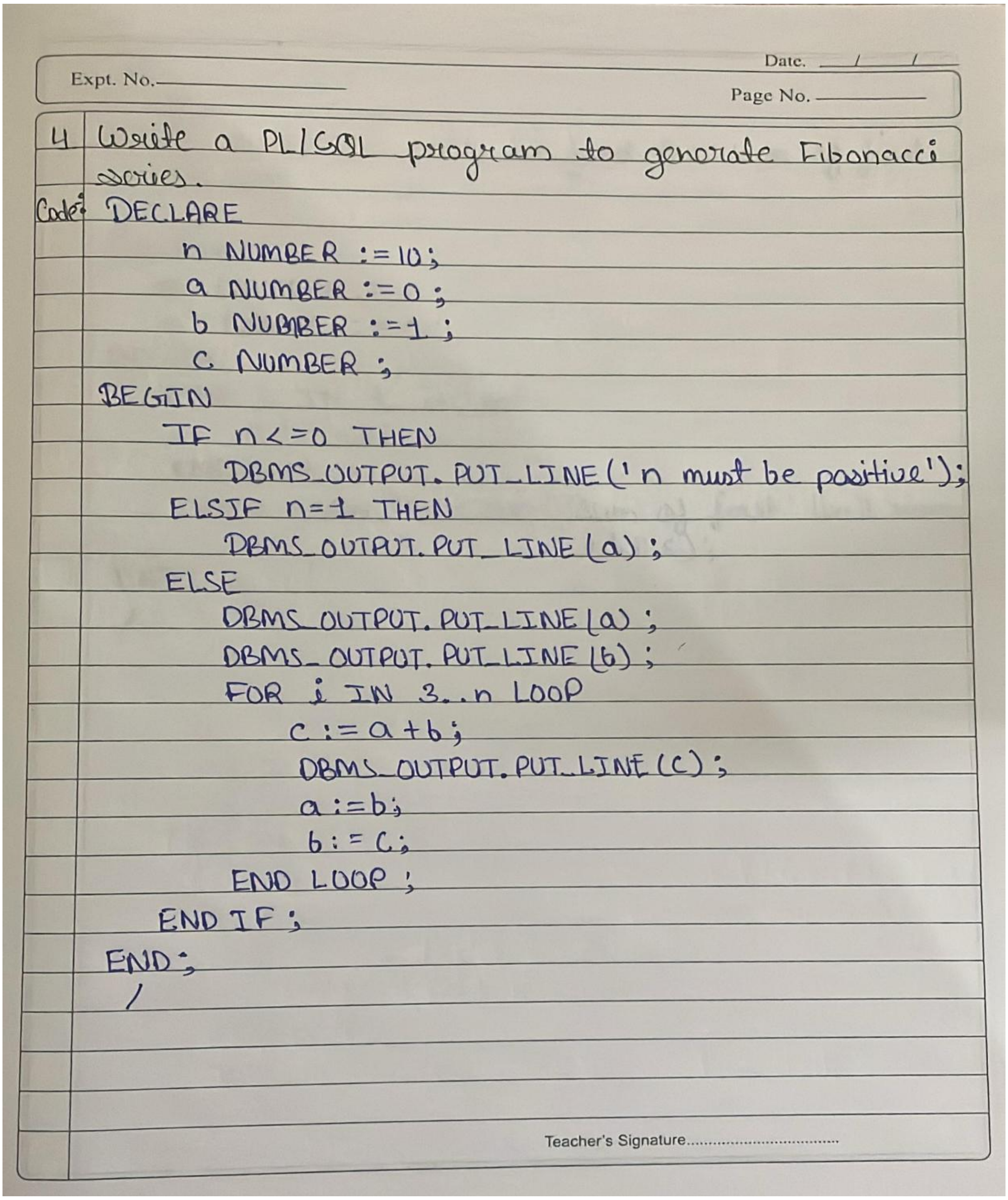
Output-:



```
0
1
1
2
3
5
8
13
21
34

Statement processed.
```

0.00 seconds



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4 Write a PL/SQL program to generate Fibonacci series.

Code:

```
DECLARE
        n NUMBER :=10;
        a NUMBER :=0;
        b NUMBER :=1;
        c NUMBER;
BEGIN
    IF n<=0 THEN
        DBMS_OUTPUT.PUT_LINE('n must be positive');
    ELSIF n=1 THEN
        DBMS_OUTPUT.PUT_LINE(a);
    ELSE
        DBMS_OUTPUT.PUT_LINE(a);
        DBMS_OUTPUT.PUT_LINE(b);
        FOR i IN 3..n LOOP
            c:=a+b;
            DBMS_OUTPUT.PUT_LINE(c);
            a:=b;
            b:=c;
        END LOOP;
    END IF;
END;
/
```

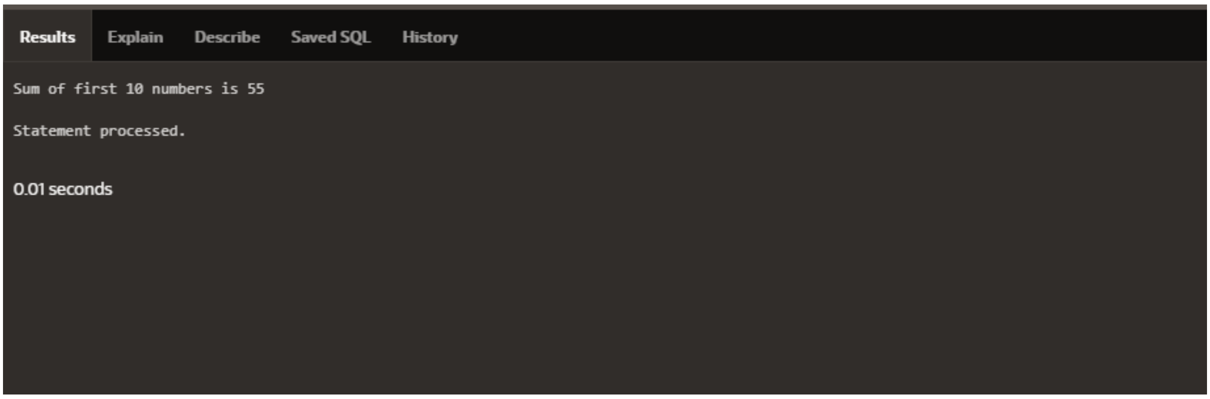
Teacher's Signature..................................

Q5=Write a PL/SQL code to fund the sum of first N numbers.

Code-:

```
DECLARE
  n   NUMBER := 10;
  s   NUMBER := 0;
BEGIN
  FOR i IN 1..n LOOP
    s := s + i;
  END LOOP;
  DBMS_OUTPUT.PUT_LINE('Sum of first ' || n || ' numbers is ' || s);
END;
/
```

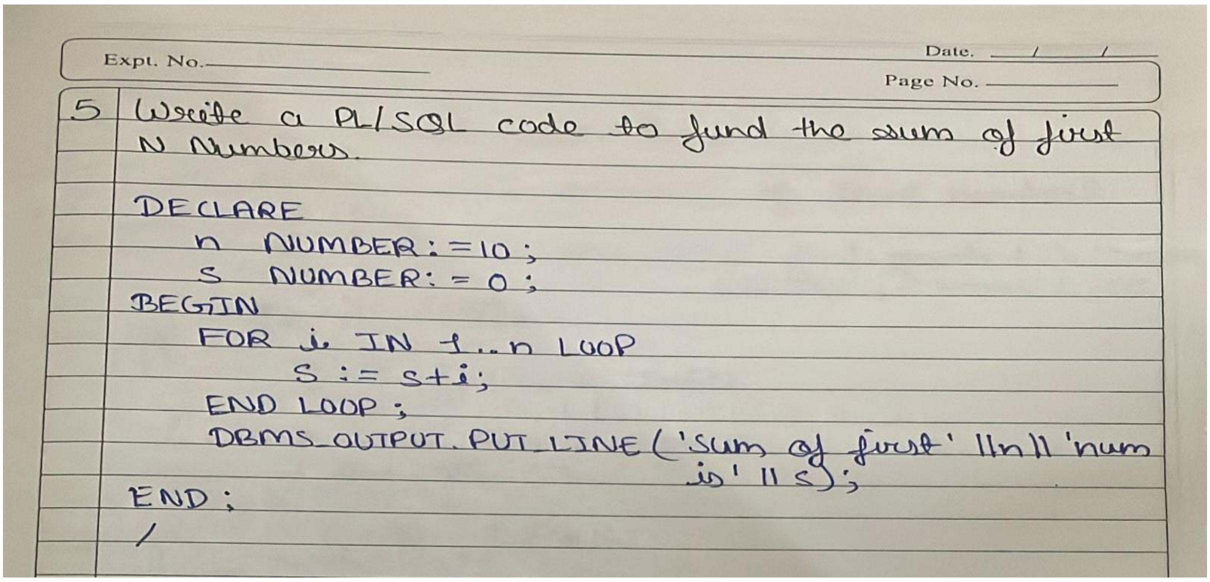
Output-:



```
Sum of first 10 numbers is 55

Statement processed.

0.01 seconds
```



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5 Write a PL/SQL code to fund the sum of first N Numbers.

```
DECLARE
    n   NUMBER:=10;
    S   NUMBER:= 0;
BEGIN
    FOR i IN 1..n LOOP
        S := S+i;
    END LOOP;
    DBMS_OUTPUT.PUT_LINE('Sum of first' ||n|| 'num
                          is' || s);
END;
/
```

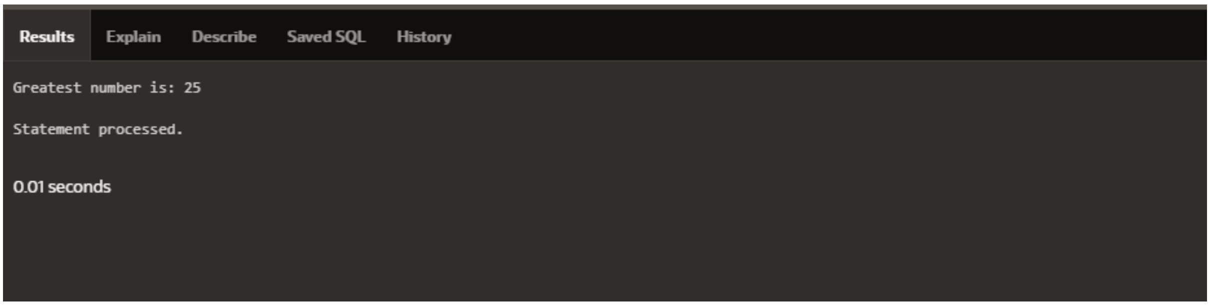
Experiment-:2

To understand concepts of Function and Procedure in PL/SQL

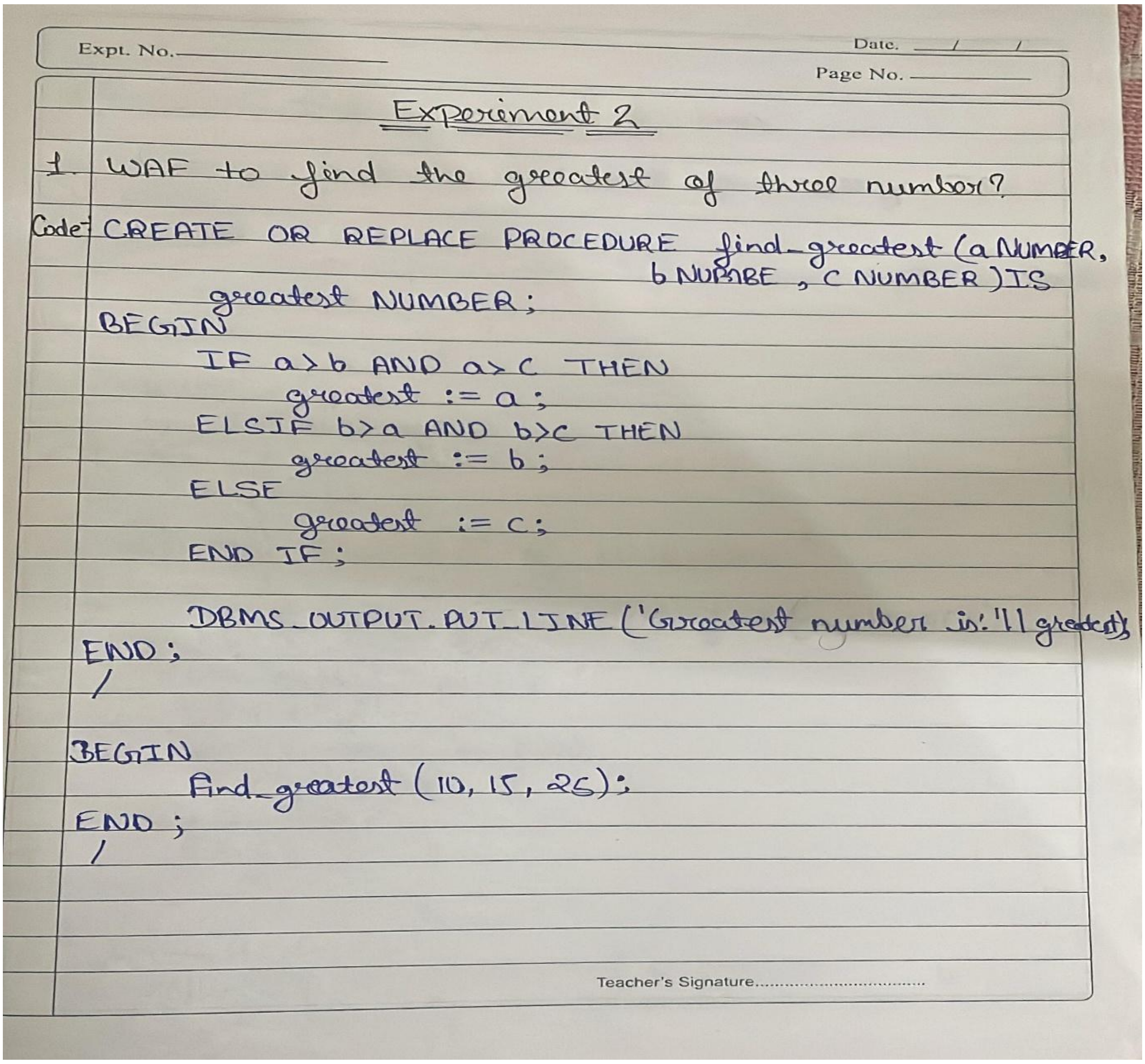
Q1=Find the greatest of A, B, C (Procedure).

Code-:

```
CREATE OR REPLACE PROCEDURE find_greatest(a NUMBER, b NUMBER, c NUMBER) IS
  greatest NUMBER;
BEGIN
  IF a > b AND a > c THEN
    greatest := a;
  ELSIF b > a AND b > c THEN
    greatest := b;
  ELSE
    greatest := c;
  END IF;

  DBMS_OUTPUT.PUT_LINE('Greatest number is: ' || greatest);
END;
/
BEGIN
  find_greatest(10, 25, 15);
END;
/
```



```
Greatest number is: 25

Statement processed.

0.01 seconds
```



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Experiment 2

1. WAF to find the greatest of three number?

Code-

```
CREATE OR REPLACE PROCEDURE find_greatest (a NUMBER,
                                 b NUMBE , C NUMBER )IS
        greatest NUMBER;
BEGIN
        IF a>b AND a>C THEN
            greatest := a;
        ELSIF b>a AND b>C THEN
            greatest := b;
        ELSE
            greatest := C;
        END IF;

        DBMS_OUTPUT.PUT_LINE('Greatest number is: '|| greatest)
END;
/

BEGIN
        Find_greatest (10, 15, 25);
END;
/
```

Teacher's Signature..................................

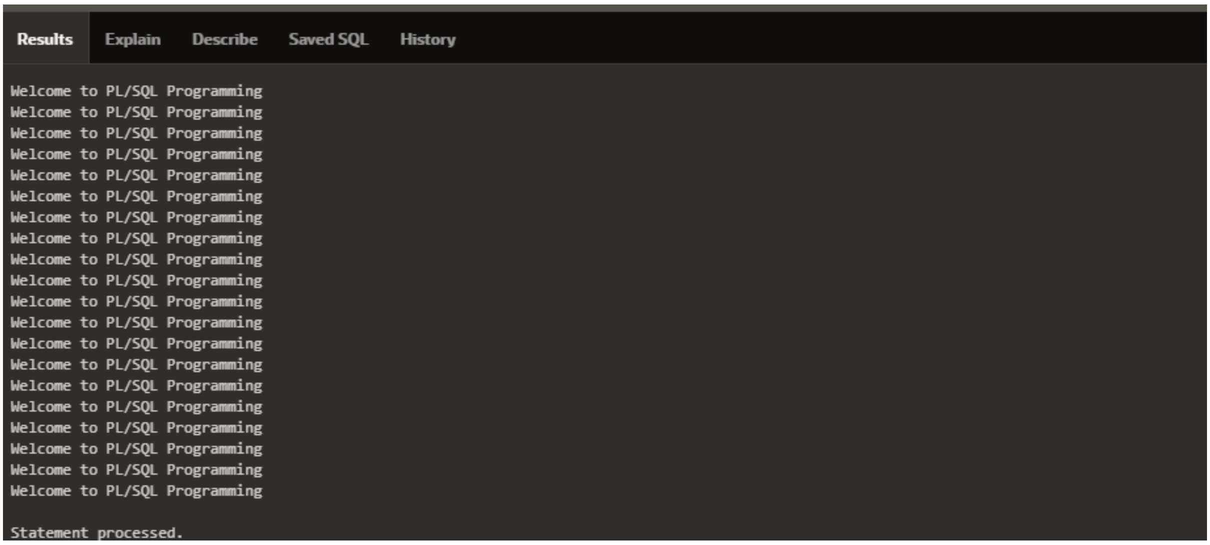
Q2= Display message 20 times (Procedure)

Code-:

```
CREATE OR REPLACE PROCEDURE print_message IS
BEGIN
   FOR i IN 1..20 LOOP
      DBMS_OUTPUT.PUT_LINE('Welcome to PL/SQL Programming');
   END LOOP;
END;
/
BEGIN
   print_message;
```

```
END;
/
```

Output-:



```
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
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Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming
Welcome to PL/SQL Programming

Statement processed.
```

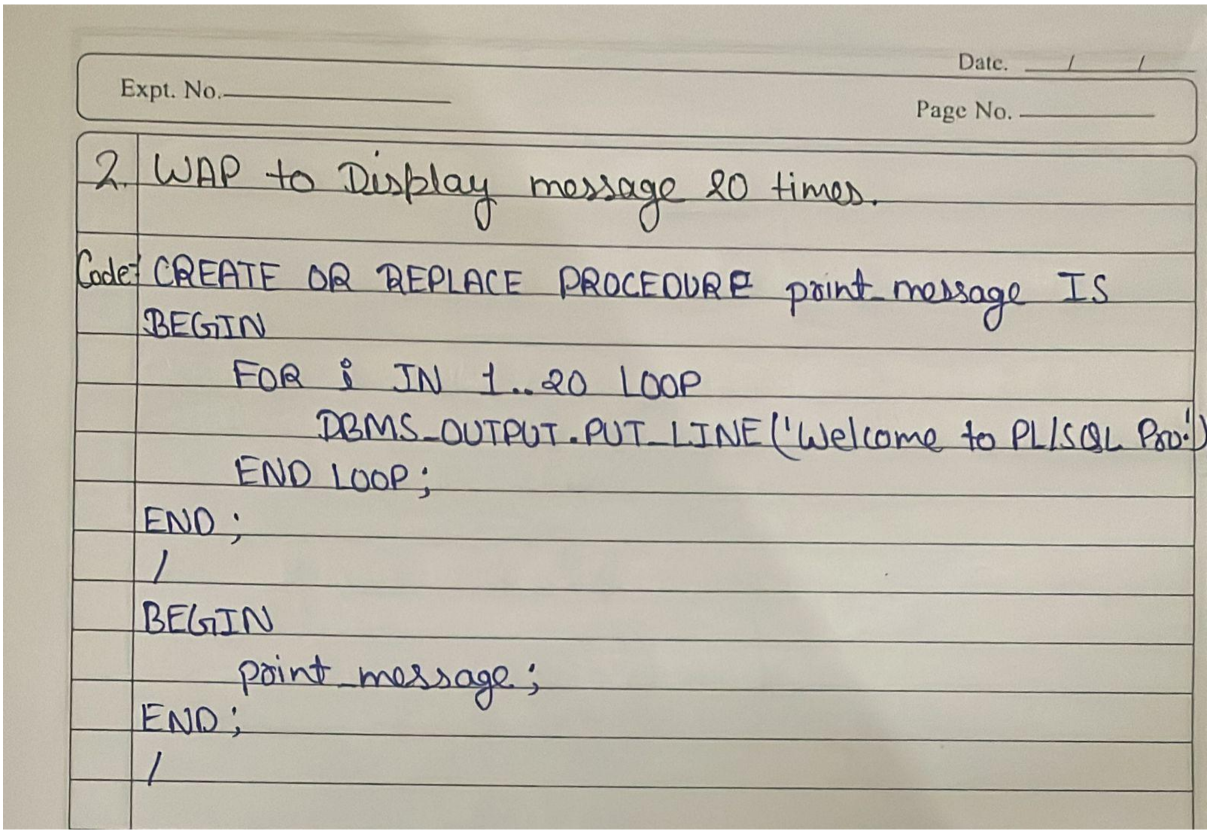

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2. WAP to Display message 20 times.

Code-:
```
CREATE OR REPLACE PROCEDURE print_message IS
BEGIN
    FOR i IN 1..20 LOOP
        DBMS_OUTPUT.PUT_LINE('Welcome to PL/SQL Pro!')
    END LOOP;
END;
/
BEGIN
    print_message;
END;
/
```

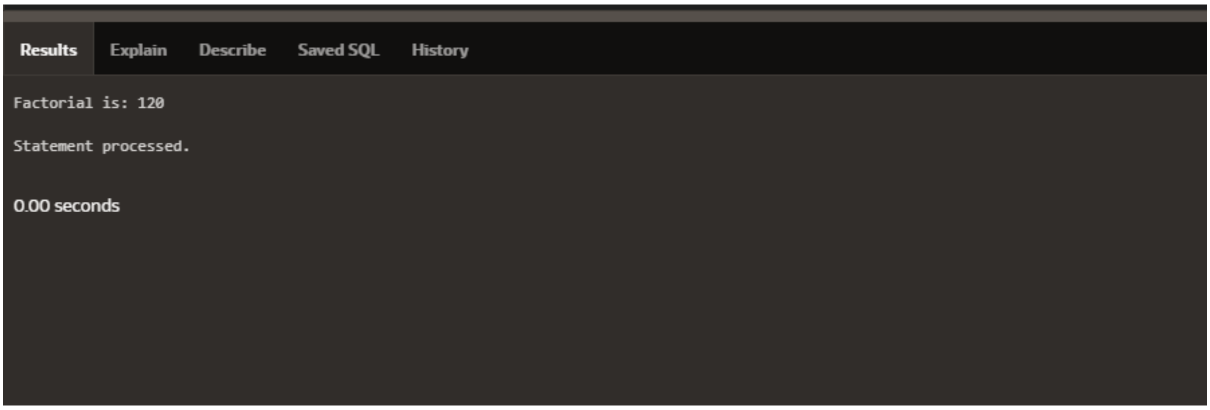
Q3= Factorial of a number (Function)

Code-:

```
CREATE OR REPLACE FUNCTION fact(n NUMBER)
```

```
RETURN NUMBER IS
   f NUMBER := 1;
BEGIN
   FOR i IN 1..n LOOP
      f := f * i;
   END LOOP;
   RETURN f;
END;
/
BEGIN
   DBMS_OUTPUT.PUT_LINE('Factorial is: ' || fact(5));
END;
/
```

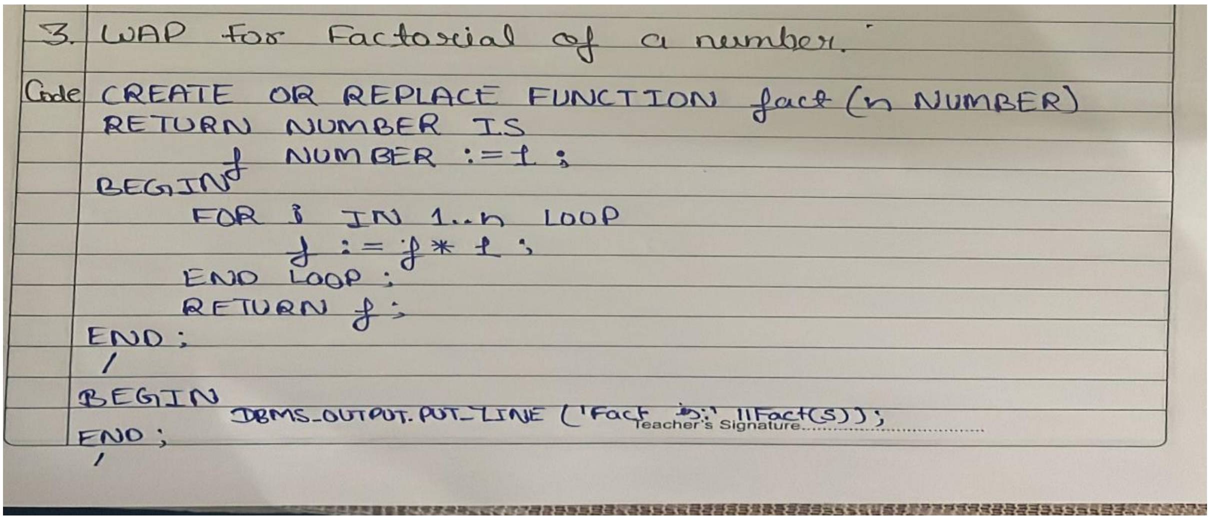
Output-:



```
Factorial is: 120

Statement processed.

0.00 seconds
```



3. WAP for Factorial of a number.

Code
```
CREATE OR REPLACE FUNCTION fact (n NUMBER)
RETURN NUMBER IS
      f NUMBER := 1;
BEGIN
      FOR i IN 1..n LOOP
            f := f * i;
      END LOOP;
      RETURN f;
END;
/
BEGIN
      DBMS_OUTPUT.PUT_LINE ('Fact is:' ||Fact(5));
END;
/
```

Teacher's Signature.................................

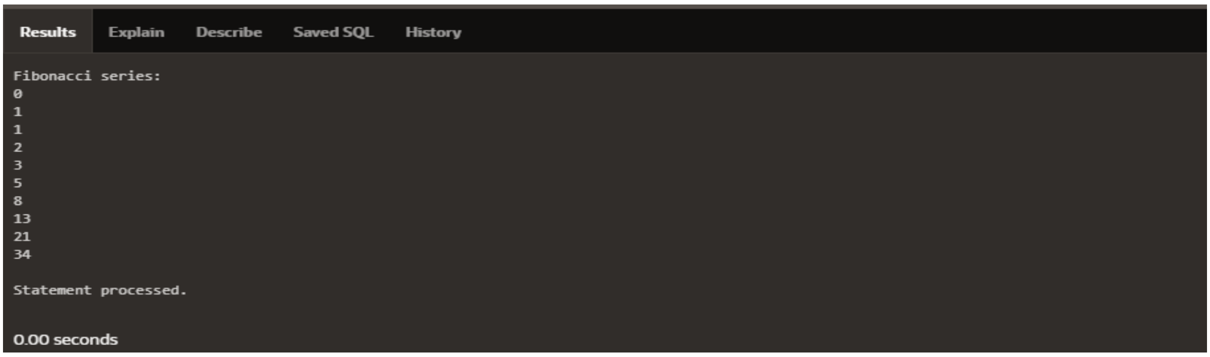
Q4= Fibonacci series (Procedure).

Code-:

```
CREATE OR REPLACE PROCEDURE fibonacci(n NUMBER) IS
   a NUMBER := 0;
   b NUMBER := 1;
   c NUMBER;
BEGIN
   DBMS_OUTPUT.PUT_LINE('Fibonacci series:');
   DBMS_OUTPUT.PUT_LINE(a);
   DBMS_OUTPUT.PUT_LINE(b);

   FOR i IN 3..n LOOP
      c := a + b;
      DBMS_OUTPUT.PUT_LINE(c);
      a := b;
      b := c;
   END LOOP;
END;
/
BEGIN
   fibonacci(10);
END;
/
```

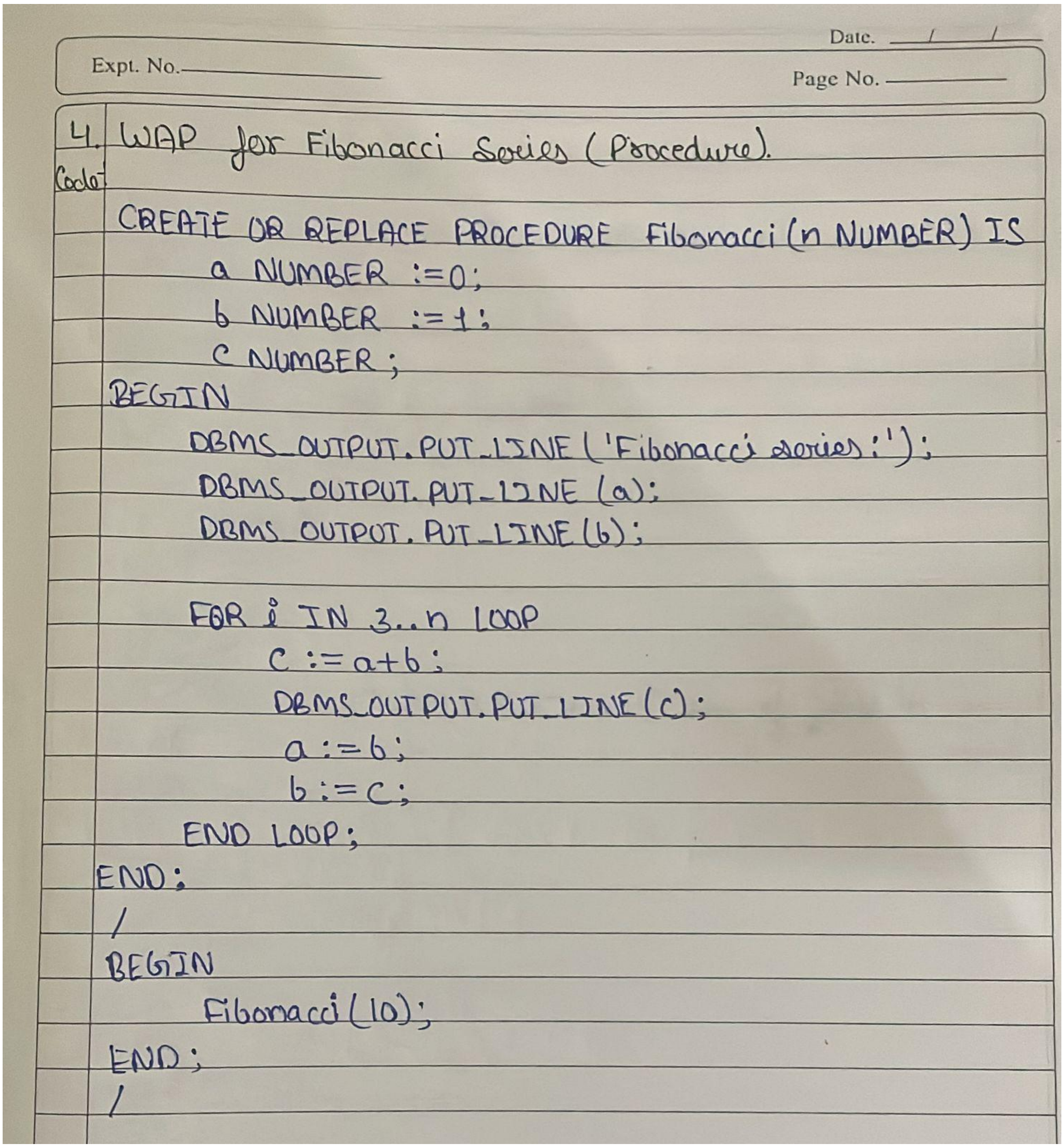
Output-:



```
Fibonacci series:
0
1
1
2
3
5
8
13
21
34

Statement processed.

0.00 seconds
```



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4. WAP for Fibonacci Series (Procedure).

Code:

```
CREATE OR REPLACE PROCEDURE Fibonacci(n NUMBER) IS
        a NUMBER :=0;
        b NUMBER :=1;
        c NUMBER;
BEGIN
      DBMS_OUTPUT.PUT_LINE('Fibonacci series:');
      DBMS_OUTPUT.PUT_LINE (a);
      DBMS_OUTPUT.PUT_LINE(b);

      FOR i IN 3..n LOOP
            c := a+b;
            DBMS_OUTPUT.PUT_LINE(c);
            a:=b;
            b:=c;
      END LOOP;
END;
/
BEGIN
      Fibonacci(10);
END;
/
```

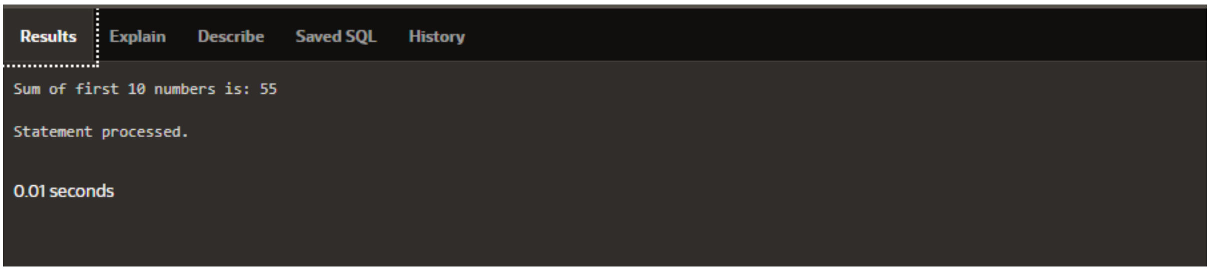
Q5= Sum of first N numbers (Function).

Code-:

```
CREATE OR REPLACE FUNCTION sum_n(n NUMBER)
RETURN NUMBER IS
   s NUMBER := 0;
BEGIN
   FOR i IN 1..n LOOP
      s := s + i;
```

```
    END LOOP;
    RETURN s;
END;
/
BEGIN
    DBMS_OUTPUT.PUT_LINE('Sum of first 10 numbers is: ' || sum_n(10));
END;
/
```

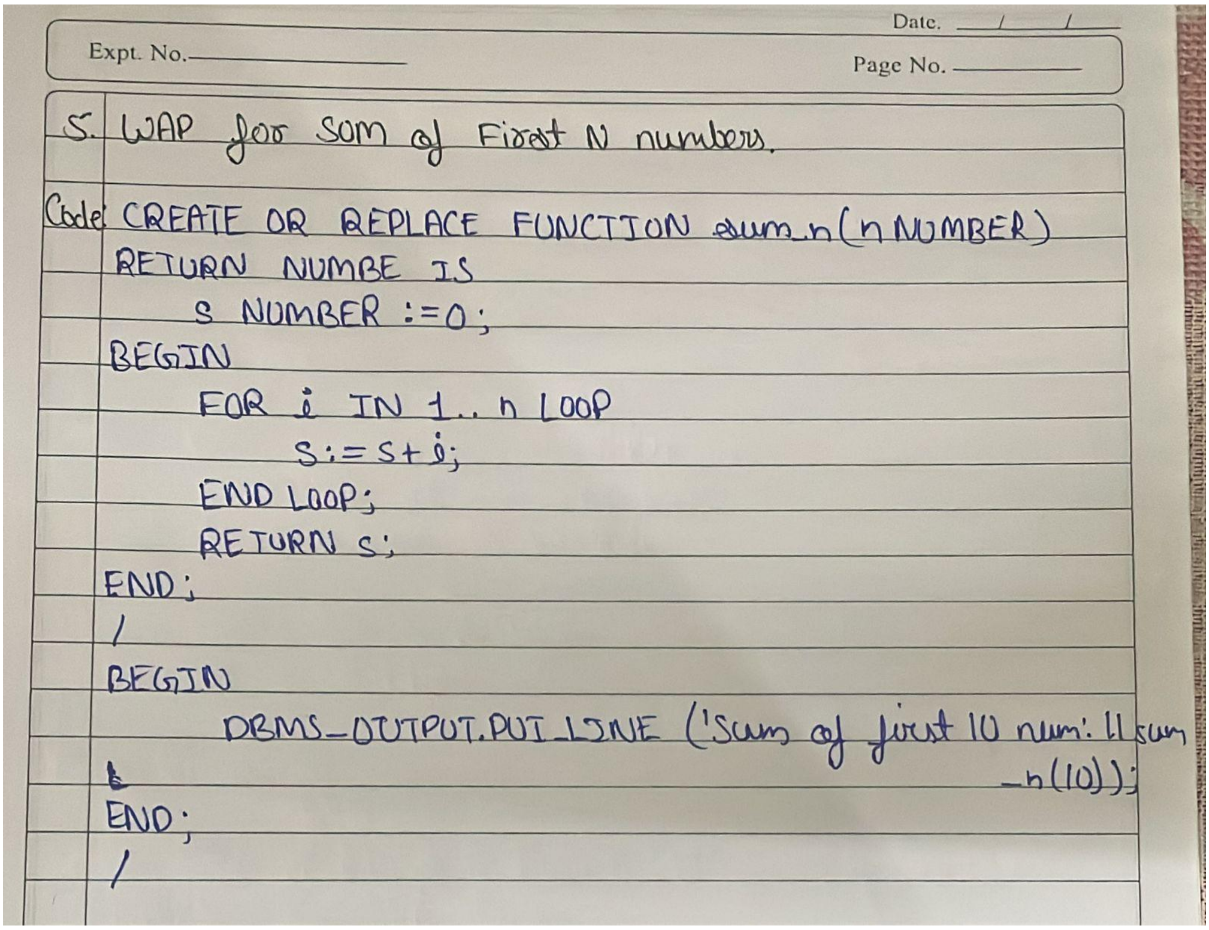
Output-:



```
Sum of first 10 numbers is: 55

Statement processed.

0.01 seconds
```



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5. WAP for Som of First N numbers.

Code:
```
CREATE OR REPLACE FUNCTION sum_n(n NUMBER)
RETURN NUMBE IS
    S NUMBER :=0;
BEGIN
    FOR i IN 1.. n LOOP
        S:= S+i;
    END LOOP;
    RETURN S;
END;
/
BEGIN
    DBMS_OUTPUT.PUT_LINE ('Sum of first 10 num: || sum
                                            _n(10));
END;
/
```