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Praktikum 12A

- Source Code

```
function sum(x: integer):integer;  
begin  
    if x = 1 then sum := 1  
    else sum := x + sum(x-1);  
end;  
  
var x: integer= 5;  
begin  
    writeln('Hasil penjumlahan ', x, ' bilangan bulat pertama = ', sum(x));  
end.
```

- Output

```
Compiling praktikum12A.pas  
Linking praktikum12A.exe  
9 lines compiled, 0.1 sec, 28784 bytes code, 1332 bytes data  
Hasil penjumlahan 5 bilangan bulat pertama = 15
```

Praktikum 12B

- Source Code

```
program penugasan9B;  
uses crt;  
  
function sum(a, b: real):real;  
begin  
    sum:=a+b  
end;  
  
function subtract(a, b: real):real;  
begin  
    subtract:=a-b  
end;  
  
function multiply(a, b: real):real;  
begin  
    multiply:=a*b  
end;  
  
function divide(a, b: real):real;  
begin  
    divide:=a/b  
end;
```

```

function factorial(x:integer):integer;
begin
    if x = 1 then factorial := 1
    else factorial := x * factorial(x-1);
End;

var
    num1, num2, result: real;
    num3: word;
    choice: byte;
    sign: char;
begin
    clrscr;

    writeln('SELAMAT DATANG DI KALKULATOR SEDERHANA');
    while True do begin
        writeln('Silahkan pilih menu berikut:');
        writeln('  1. Penjumlahan');
        writeln('  2. Pengurangan');
        writeln('  3. Perkalian');
        writeln('  4. Pembagian');
        writeln('  5. Faktorial');
        writeln('  6. Keluar');
        write('Pilihan Anda: ');
        readln(choice);

        if choice=6 then
            exit
        else if choice=5 then begin
            write('|  angka: '); readln(num3);
            result:=factorial(num3);
            writeln('|  ', num3, '! = ', result:0:0);
            writeln;
            continue;
        end
        else begin
            write('|  angka-1: '); readln(num1);
            write('|  angka-2: '); readln(num2);

            case choice of
                1: begin
                    result:=sum(num1, num2);
                    sign:='+';
                end;
            end;
        end;
    end;
end;

```

```

        2: begin
            result:=subtract(num1, num2);
            sign:='-';
        end;
        3: begin
            result:=multiply(num1, num2);
            sign:='x';
        end;
        4: begin
            result:=divide(num1, num2);
            sign:='/';
        end;
    end;
end;

writeln('| (' , num1:0:2, ') ' , sign, ' (' , num2:0:2, ')', ' = ',
result:0:2);
writeln;
end;
end.

```

- Output

```

SELAMAT DATANG DI KALKULATOR SEDERHANA
Silahkan pilih menu berikut:
1. Penjumlahan
2. Pengurangan
3. Perkalian
4. Pembagian
5. Faktorial
6. Keluar
Pilihan Anda: 5
|  angka: 5
|  5! = 120

```

Praktikum 12C

- Source Code

```

procedure TULIS_1(banyak: integer; kata: string);
begin
    if banyak>1 then TULIS_1(banyak-1, kata);
    writeln(kata, banyak);
end;

begin
    TULIS_1(5, 'Cetakan ke ');
end.

```

- Ouput

```
Compiling praktikum12C.pas
Linking praktikum12C.exe
8 lines compiled, 0.1 sec, 28736 bytes code, 1316 bytes data
Cetakan ke 1
Cetakan ke 2
Cetakan ke 3
Cetakan ke 4
Cetakan ke 5
```

- Source Code (Modifikasi praktikum12C)

```
procedure TULIS_1(banyak: integer; kata: string);
begin
    writeln(kata, banyak);
    if banyak>1 then TULIS_1(banyak-1, kata);
end;

begin
    TULIS_1(5, 'Cetakan ke ');
end.
```

- Output (Modifikasi praktikum10C)

```
Compiling praktikum12C.pas
Linking praktikum12C.exe
8 lines compiled, 0.1 sec, 28736 bytes code, 1316 bytes data
Cetakan ke 5
Cetakan ke 4
Cetakan ke 3
Cetakan ke 2
Cetakan ke 1
```

Praktikum 12D

- Source Code (Recursive Function)

```
program fibo_using_rekursif;

var
    x,i: integer;

function fib(n:integer):integer;
begin
    if(n=1) then fib:=1
    else if (n=2) then fib:=1
    else fib:=fib(n-1)+fib(n-2);
end;

begin
    writeln('deret fibonacci');
    write('input value : ');
    readln(x);
    writeln;
    for i := 1 to x do write(fib(i), ' ');
```

```
    readln;
end.
```

- Output (Recursive Function)

```
Compiling praktikum12D.pas
Linking praktikum12D.exe
19 lines compiled, 0.1 sec, 30864 bytes code, 1332 bytes data
deret fibonacci
input value : 7

1 1 2 3 5 8 13
```

- Source Code (Recursive Procedure)

```
procedure pib(n:integer; var hsl :integer);
var f1, f2: integer;
begin
    if(n=1) or (n=2) then hsl:=1
    else begin
        pib(n-1, f1);
        pib(n-2, f2);
        hsl:= f1 + f2;
    end;
end;

var x,i: integer; hsl:integer;
begin
    writeln('Barisan Bilangan Fibonacci');
    write('Jumlah bilangan Fibonnaci yang ingin ditampilkan : ');
    readln(x); writeln;

    for i := 1 to x do
    begin
        pib(i,hsl);
        write(hsl, ' ');
    end;
    readln;
end.
```

- Output (Recursive Procedure)

```
Compiling praktikum12D_mod.pas
Linking praktikum12D_mod.exe
23 lines compiled, 0.1 sec, 30848 bytes code, 1332 bytes data
Barisan Bilangan Fibonacci
Jumlah bilangan Fibonnaci yang ingin ditampilkan : 7

1 1 2 3 5 8 13
```