PART 3

Basic Branching, Looping & Function

Problem 1 - Konversi Nilai

Input Program

part3.py > ...

```python
################  PART 3 : BASIC BRANCHING, LOOPING & FUNCTION

## Problem 1 = Nilai Siswa
def konversi_nilai(student_score):
    if 80 <= student_score <= 100:
        return "Nilai A"
    elif 65 <= student_score <= 79:
        return "Nilai B+"
    elif 50 <= student_score <= 64:
        return "Nilai B"
    elif 35 <= student_score <= 49:
        return "Nilai C"
    elif 5 <= student_score <= 34:
        return "Nilai D"
    else:
        return "Nilai tidak valid"

### input
student_name = input("Masukkan nama mahasiswa: ")
student_score = int(input("Masukkan nilai mahasiswa: "))

nilai_huruf = konversi_nilai(student_score)
print (nilai_huruf)
```

Output Program

```
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
Masukkan nama mahasiswa: Wartadi
Masukkan nilai mahasiswa: 85
Nilai A
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
Masukkan nama mahasiswa: Muhammad Fazri
Masukkan nilai mahasiswa: 79
Nilai B+
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
Masukkan nama mahasiswa: Muhammad Dzulfikar
Masukkan nilai mahasiswa: 64
Nilai B
```

Problem 2 - 2.1 Faktor Bilangan (Ascending)

Input Program

part3.py > ...

```python
# 2.1
def faktor_bilangan_ascending(number):
    factors = []
    for i in range(1, number + 1):
        if number % i == 0:
            factors.append(i)
    return factors

number = int(input("Masukkan bilangan: "))
factors = faktor_bilangan_ascending(number)
print("Faktor dari", number, "adalah:")
for factor in factors:
    print(factor)
```

Terminal (^`)

Output Program

```
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
Masukkan bilangan: 6
Faktor dari 6 adalah:
1
2
3
6
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
Masukkan bilangan: 20
Faktor dari 20 adalah:
1
2
4
5
10
20
```

Problem 2 - 2.2 Faktor Bilangan (Descending)

Input Program

part3.py > ...

```python
# 2.2
def faktor_bilangan_descending(number):
    factors = []
    for i in range(number, 0, -1):
        if number % i == 0:
            factors.append(i)
    return factors

number = int(input("Masukkan bilangan: "))
factors = faktor_bilangan_descending(number)
print("Faktor dari", number, "adalah:")
for factor in factors:
    print(factor)
```

Output Program

```
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py

Masukkan bilangan: 6
Faktor dari 6 adalah:
6
3
2
1
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py

Masukkan bilangan: 20
Faktor dari 20 adalah:
20
10
5
4
2
1
```

Problem 3 - Bilangan Prima

Input Program

part3.py > ...

```python
# 2.3

def prime_number(number):
    if number <= 1:
        return False
    for i in range(2, int(number ** 0.5) + 1):
        if number % i == 0:
            return False
    return True

print(prime_number(11))  # True
print(prime_number(13))  # True
print(prime_number(17))  # True
print(prime_number(20))  # False
print(prime_number(35))  # False
```

Output Program

```
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py

Input number 11 adalah True
Input number 13 adalah True
Input number 17 adalah True
Input number 20 adalah False
Input number 35 adalah False
```

Problem 4 - Palindrome

Input Program

```python
# 2.4
def palindrome(input_string):
    # Menghilangkan spasi dan mengubah string menjadi huruf kecil
    clean_string = input_string.replace(" ", "").lower()
    # Membandingkan string dengan kebalikannya
    return clean_string == clean_string[::-1]

print("civic \t\t=",palindrome("civic"))       # True
print("katak \t\t=",palindrome("katak"))       # True
print("kasur rusak \t=", palindrome("kasur rusak")) # True
print("kupu-kupu \t=",palindrome("kupu-kupu"))   # False
print("lion \t\t=",palindrome("lion"))        # False
```

Output Program

```
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
civic           = True
katak           = True
kasur rusak     = True
kupu-kupu       = False
lion            = False
```

Problem 5 - Exponentiation

Input Program

part3.py > ...

```
84  # 2.5 Pangkat
85
86  def pangkat(base, exponent):
87      return base ** exponent
88
89  print(" 2 pangkat 3 \t=",pangkat(2, 3))  # 8
90  print(" 5 pangkat 3 \t=",pangkat(5, 3))  # 125
91  print(" 10 pangkat 2 \t=",pangkat(10, 2)) # 100
92  print(" 2 pangkat 5 \t=",pangkat(2, 5))  # 32
93  print(" 7 pangkat 3 \t=",pangkat(7, 3))  # 343
```

Output Program

```
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
 2 pangkat 3    = 8
 5 pangkat 3    = 125
 10 pangkat 2   = 100
 2 pangkat 5    = 32
 7 pangkat 3    = 343
```

Problem 6 - Exponentiation

Input Program

part3.py > ...

```python
##2.6 Full Prima
def is_prime(number):
    if number <= 1:
        return False
    for i in range(2, int(number ** 0.5) + 1):
        if number % i == 0:
            return False
    return True

def full_prima(N):
    if not is_prime(N):
        return False
    for digit in str(N):
        if not is_prime(int(digit)):
            return False
    return True

print("input 2 \t=",full_prima(2))   # True
print("input 3 \t=",full_prima(3))   # True
print("input 11 \t=",full_prima(11))  # False
print("input 13 \t=",full_prima(13))  # False
print("input 23 \t=",full_prima(23))  # True
print("input 29 \t=",full_prima(29))  # False
print("input 37 \t=",full_prima(37))  # True
print("input 41 \t=",full_prima(41))  # False
print("input 43 \t=",full_prima(43))  # False
print("input 53 \t=",full_prima(53))  # True
```

Output Program

```
wartadi@Wartadis-MacBook-Pro belajar_phython_alta % python3 part3.py
input 2         = True
input 3         = True
input 11        = False
input 13        = False
input 23        = True
input 29        = False
input 37        = True
input 41        = False
input 43        = False
input 53        = True
```