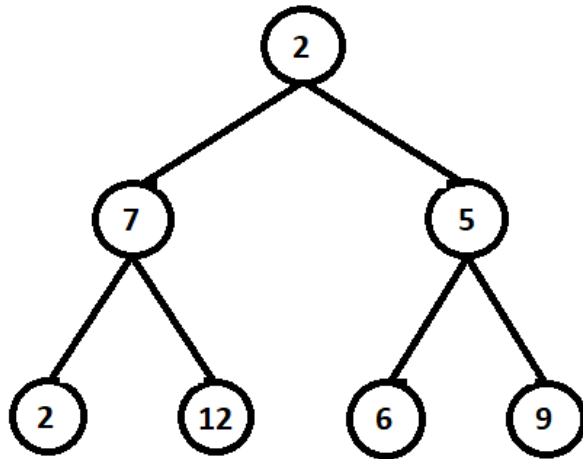


Tree 3 level



Tugas2_B_24060120140161_AbyanArdiatama.py - E:\KULIAH\DAFTAR\Tugas2_B_24060120140161_AbyanArdiatama.py (3,7,4)

```
"""
NIM      : 24060120140161
Nama     : Abyan A.
Deskripsi : Menyelesaikan perhitungan Tree menggunakan operasi rekursif
Tanggal  : 23 November 2020
"""

#DASAR TREE
class PohonBiner:
    def __init__(self,A,L,R):
        self.A = A #Akar
        self.L = L #Left
        self.R = R #Right
def Akar(P):
    return P.A
def Left(P):
    return P.L
def Right(P):
    return P.R
def MakePB(A,L,R): #PohonBiner
    return PohonBiner(A,L,R)
#####
def IsTreeEmpty(P):
    if P == None:
        return True
    else:
        return False
def IsOneElmtPB(P):
    if not IsTreeEmpty(P) and IsTreeEmpty(Right(P)) and IsTreeEmpty(Left(P)):
        return True
    else:
        return False
```

```
#####
def IsUserLeftPB(P): #P mengandung sub pohon kiri
    if not IsTreeEmpty(P) and not IsTreeEmpty(Left(P)) and IsTreeEmpty(Right(P)):
        return True
    else:
        return False
def IsUserRightPB(P): #P mengandung sub pohon kanan
    if not IsTreeEmpty(P) and IsTreeEmpty(Left(P)) and not IsTreeEmpty(Right(P)):
        return True
    else:
        return False
#####
def IsExistLeftPB(P): #P mengandung sub pohon kanan
    if not IsTreeEmpty(P) and not IsTreeEmpty(Left(P)):
        return True
    else:
        return False
def IsExistRightPB(P):
    if not IsTreeEmpty(P) and not IsTreeEmpty(Right(P)):
        return True
    else:
        return False
#####
def IsBiner(P):
    if not IsTreeEmpty(P) and not IsTreeEmpty(Right(P)) and not IsTreeEmpty(Left(P)):
        return True
    else:
        return False
```

Abyan Ardiatama
24060120140161
Tugas 2_B

```
#####
def NbElmt(P):
    if IsTreeEmpty(P):
        return 0
    elif IsOneElmtPB(P):
        return 1
    else:
        if IsBiner(P):
            return NbElmt(Left(P)) + 1 + NbElmt(Right(P))
        elif IsUnerLeftPB(P):
            return NbElmt(Left(P)) + 1
        elif IsUnerRightPB(P):
            return NbElmt(Right(P)) + 1
        else:
            return 0
#####
def NbDaunPB(P):
    if IsTreeEmpty(P):
        return 0
    elif IsOneElmtPB(P):
        return 1
    else:
        if IsBiner(P):
            return NbDaunPB(Left(P)) + NbDaunPB(Right(P))
        elif UnerLeftPB(P):
            return NbDaunPB(Left(P))
        elif IsUnerRight(P):
            return NbDaunPB(Right(P))
        else:
            return 0
```

```
#####
#APLIKASI
P1 = MakePB(
    2,
    MakePB(7, MakePB(2, None, None), MakePB(12, None, None)),
    MakePB(5, MakePB(6, None, None), MakePB(9, None, None))
)

print("\n====IsUnerLeftPB====")
print(IsUnerLeftPB(P1))
print("\n====IsUnerRightPB====")
print(IsUnerRightPB(P1))

print("\n====IsOneElmtPB====")
print(IsOneElmtPB(P1))

print("\n====IsBiner====")
print(IsBiner(P1))

print("\n====IsTreeEmpty====")
print(IsTreeEmpty(P1))
print(IsTreeEmpty(P1))

print("\n====NbElmt====")
print(NbElmt(P1))

print("\n====NbDaun====")
print(NbDaunPB(P1))
#####
```

APLIKASI

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul 8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:\KULIAH\DAASPRO\PRAK12\Tugas2_B_24060120140161_AbyanArdiatama.py =

====IsUnerLeftPB====
False

====IsUnerRightPB====
False

====IsOneElmtPB====
False

====IsBiner====
True

====IsTreeEmpty====
False
False

====NbElmt====
7

====NbDaun====
4
>>> |
```