Ch03 변수(Variable)

01. 정보의 표현

데이터 표현

In [1]:
```
# Turtle : colormixer

from turtle import Screen, Turtle, mainloop

class ColorTurtle(Turtle):

    def __init__(self, x, y):
        Turtle.__init__(self)
        self.shape("turtle")
        self.resizemode("user")
        self.shapesize(3,3,5)
        self.pensize(10)
        self._color = [0,0,0]
        self.x = x
        self._color[x] = y
        self.color(self._color)
        self.speed(0)
        self.left(90)
        self.pu()
        self.goto(x,0)
        self.pd()
        self.sety(1)
        self.pu()
        self.sety(y)
        self.pencolor("gray25")
        self.ondrag(self.shift)

    def shift(self, x, y):
        self.sety(max(0,min(y,1)))
        self._color[self.x] = self.ycor()
```

```
        self.fillcolor(self._color)
        setbgcolor()

def setbgcolor():
    screen.bgcolor(red.ycor(), green.ycor(), blue.ycor())

def main():
    global screen, red, green, blue
    screen = Screen()
    screen.delay(0)
    screen.setworldcoordinates(-1, -0.3, 3, 1.3)

    red = ColorTurtle(0, .5)
    green = ColorTurtle(1, .5)
    blue = ColorTurtle(2, .5)
    setbgcolor()

    writer = Turtle()
    writer.ht()
    writer.pu()
    writer.goto(1,1.15)
    writer.write("DRAG!",align="center",font=("Arial",30,("bold","italic")))
    return "EVENTLOOP"

if __name__ == "__main__":
    msg = main()
    print(msg)
    mainloop()
```

EVENTLOOP

ANSI escape 코드를 사용하여 콘솔에 색상이나 배경색을 변경

> \033[48;2; : 48은 배경색을 나타내고, 2는 Truecolor (24비트 RGB)를 사용할 것임을 나타냄

> m : 색상 설정을 끝내는 코드

> 2;와 m 사이에 (r; g; b) 색상 값이 문자열로 들어감

> \033[0m : 이는 ANSI escape 코드로 이전 스타일을 리셋하여 다음 텍스트 출력이 정상적인 스타일로 표시되도록 함

In [11]:
```
## 이미지 컬러 표현: r, g, b 0~255
step = 255 // 5
```

```
for r in range(0, 256, step) :  #range(시작값, 종료값, 증분값)
    for g in range(0, 256, step) :
        for b in range(0, 256, step) :
            cstr = str(r) + ';' + str(g) +';' + str(b)  #str() 문자열로 변환
            print('₩033[48;2;' + cstr + 'm' + '       ', end='')  #배경색 변경
            print('₩033[0m', end='')  #원상태 복귀
            print("₩t0x%02x:%02x:%02x" % (r, g, b))  #(r, g, b) 색상 코드
```


0x00:00:00
0x00:00:33
0x00:00:66
0x00:00:99
0x00:00:cc
0x00:00:ff
0x00:33:00
0x00:33:33
0x00:33:66
0x00:33:99
0x00:33:cc
0x00:33:ff
0x00:66:00
0x00:66:33
0x00:66:66
0x00:66:99
0x00:66:cc
0x00:66:ff
0x00:99:00
0x00:99:33
0x00:99:66
0x00:99:99
0x00:99:cc
0x00:99:ff
0x00:cc:00
0x00:cc:33
0x00:cc:66
0x00:cc:99
0x00:cc:cc
0x00:cc:ff
0x00:ff:00
0x00:ff:33
0x00:ff:66
0x00:ff:99
0x00:ff:cc
0x00:ff:ff
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0x33:33:66
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0x66:00:cc
0x66:00:ff
0x66:33:00
0x66:33:33
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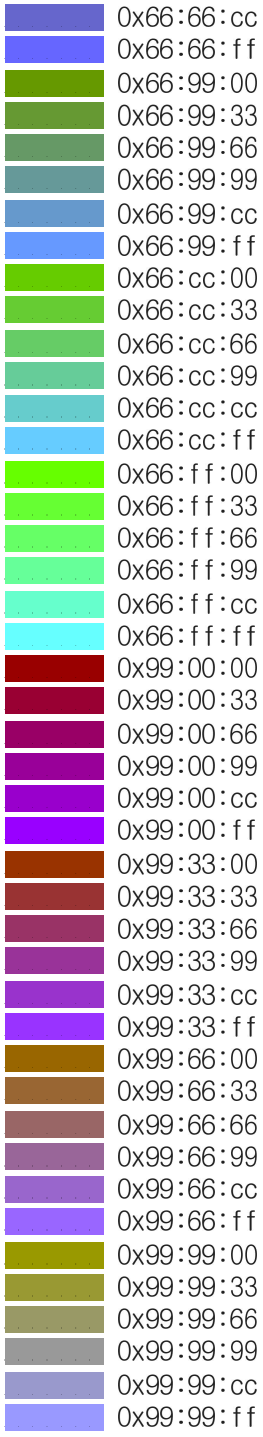
0x66:33:ff
0x66:66:00
0x66:66:33
0x66:66:66
0x66:66:99


0x66:66:cc
0x66:66:ff
0x66:99:00
0x66:99:33
0x66:99:66
0x66:99:99
0x66:99:cc
0x66:99:ff
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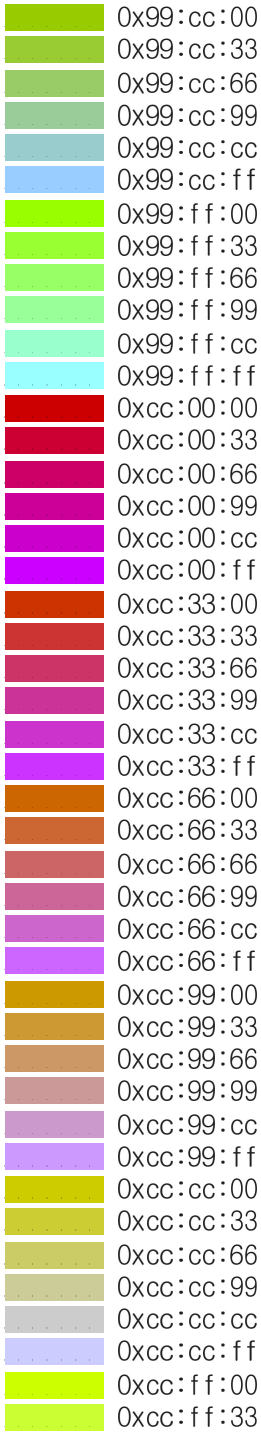
0x99:cc:00
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0x99:cc:66
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In [ ]:

02. 변수

[실습] 나이 비교하기

In [23]:
```
## 키보드로 나이를 입력받은 다음 누가 나이가 많은지를 출력
while True : #무한 반복
    age = int(input("<나이 입력> "))
    print("아~ %d살..." % age)
    myage = 30
    print("나하고 %d살 차이가 나네요." % abs(myage - age))

    if myage > age :
        print("그럼 내가 위네요.")
    elif myage < age :
        print("그럼 당신이 위네요.")
    else :
        print("그럼 동갑이네요.")

    yn = input(">>그만 하려면 x를 입력? ")
    if yn == 'x' or yn == 'X' :
        break  #반복 탈출
```

```
아~ 23살...
나하고 7살 차이가 나네요.
그럼 내가 위네요.

아~ 30살...
나하고 0살 차이가 나네요.
그럼 동갑이네요.

아~ 31살...
나하고 1살 차이가 나네요.
그럼 당신이 위네요.
```

In [ ]:
```
```

[실습] 두 수중에 큰 수 찾기

In [2]:
```
a = 3
b = 4
```

```
if a >= b:
    print(a)
else:
    print(b)
```

4

[실습] 세 수중에 큰 수 찾기

In [3]:
```
a = 3
b = 4
c = 2
if a >= b:
    if a >= c:
        print(a)
    else:
        print(c)
elif b >= c:
    print(b)
else:
    print(c)
```

4

In [4]:
```
a = 3
b = 4
c = 2
imax = a
if b >= imax:
    imax = b
if c >= imax:
    imax = c
print(imax)
```

4

In [1]:
```
def fmax(a, b):
    if a >= b:
        return a
    else:
        return b
a = 3
b = 4
c = 2
```

```
imax = a
imax = fmax(imax, b)
imax = fmax(imax, c)
print(imax)
```

4

In [2]:
```
x = [3, 4, 2, 1, 9, 8, 33, 0, 4, 7, 6]  #list(나열)형
imax = x[0]
for i in range(0, len(x)-1):  #index 사용 접근. range(시작값, 종료값, 증분값)
    if imax < x[i+1]:
        imax = x[i+1]
print(imax)
```

33

In [3]:
```
x = [3, 4, 2, 1, 9, 8, 33, 0, 4, 7, 6]  #list형
imax = x[0]
for y in x:   #항목 값 사용 접근
    if imax < y:
        imax = y
print(imax)
```

33

In [4]:
```
x = [3, 4, 2, 1, 9, 8, 33, 0, 4, 7, 6]  #list형
imax = x[0]
for y in x:   #항목 값 사용 접근
    imax = fmax(imax, y)
print(imax)
```

33

In [ ]:
```

```