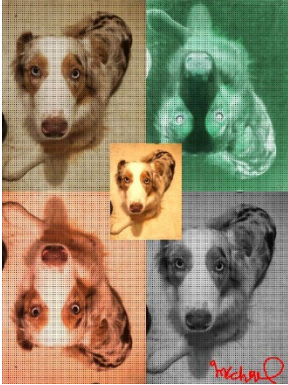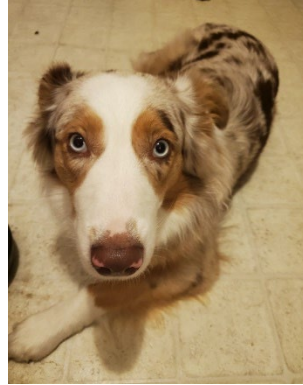# Michael Mauer

Completed: Original:


```
#Project2
#Michael Mauer

def collage():
  setMediaPath()
  pic = makePicture(getMediaPath("dog.jpg"))

  canvas = makeEmptyPicture(getWidth(pic), getHeight(pic), blue)
  smallPic = makeSmaller(pic, canvas, 0, 0)
  evenSmaller = makeSmaller(smallPic, canvas, 0, 0)
  grayPic = makeGrayPic(smallPic)
  upsideDown = upsideDownPic(smallPic)
  doubleRed = doubleRedPic(upsideDown)
  negative = makeNegative(upsideDown)
  colorful = moreColor(evenSmaller)
  copyInto(smallPic, canvas, 0, 0)
  copyInto(grayPic, canvas, getWidth(smallPic), getHeight(smallPic))
  copyInto(doubleRed, canvas, 0, getHeight(smallPic))
  copyInto(negative, canvas, getWidth(smallPic), 0)
  dotted = dottedPic(canvas)
  copyInto(colorful, canvas, (getWidth(canvas)/2)-69, (getHeight(canvas)/2)-92)
  signaturePic = makePicture(getMediaPath("sigature.jpg"))
  targetX = getWidth(canvas) - getWidth(signaturePic)
  targetY = getHeight(canvas) - getHeight(signaturePic)
  canSign = putSignature(signaturePic, canvas, targetX, targetY)
  explore(canSign)

def makeSmaller(pic, canvas, sX, sY):
  newPic = makeEmptyPicture(int(getWidth(pic)/2), int(getHeight(pic)/2))
  picX = 0
  for targetX in range(sX, sX+getWidth(pic)/2):
    picY = 0
    for targetY in range(sY, sY+getHeight(pic)/2):
      picPx = getPixelAt(pic, int(picX), int(picY))
      picColor = getColor(picPx)
      targetPx = getPixelAt(newPic, targetX, targetY)
      setColor(targetPx, picColor)
      picY = picY + 1.0/0.5
    picX = picX+ 1.0/0.5
  return(newPic)

def makeGrayPic(pic):
  newPic = duplicatePicture(pic)
```

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  for px in getAllPixels(newPic):
    redValue = getRed(px)
    blueValue = getBlue(px)
    greenValue = getGreen(px)
    grayColor = (redValue + blueValue + greenValue)/3
    newColor = makeColor(grayColor, grayColor, grayColor)
    setColor(px, newColor)
  return newPic

def upsideDownPic(pic):
  newPic = makeEmptyPicture(getWidth(pic), getHeight(pic))
  targetX = abs(0)
  for x in range(0, 276):
    targetY = abs(0-367)
    for y in range(0, 368):
      pX = getPixelAt(pic, x, y)
      newColor = getColor(pX)
      targetPx = getPixelAt(newPic, targetX, targetY)
      setColor(targetPx, newColor)
      targetY -= 1
    targetX += 1
  return(newPic)

def doubleRedPic(pic):
  newPic = duplicatePicture(pic)
  for pX in getAllPixels(newPic):
    redValue = getRed(pX)
    greenValue = getGreen(pX)
    blueValue = getBlue(pX)
    newBlue = blueValue*1.1
    newGreen = greenValue*1.1
    newRed = redValue*1.5
    if newRed > 255:
      newRed = 255
    if newGreen > 255:
      newGreen = 255
    if newBlue > 255:
      newBlue = 255
    setRed(pX, newRed)
    setGreen(pX, newGreen)
    setBlue(pX, newBlue)
  return(newPic)

def dottedPic(pic):
  for x in range(0, 552, 3):
    for y in range(0, 736, 3):
      picPx = getPixelAt(pic, x, y)
      setColor(picPx, black)
  return(pic)

def makeNegative(pic):
  for pX in getAllPixels(pic):
    redValue = getRed(pX)
    greenValue = getGreen(pX)
    blueValue = getBlue(pX)
    newColor = makeColor(abs(redValue-255), abs(blueValue-255), abs(greenValue-255))
    setColor(pX, newColor)
  return(pic)
```

```
def moreColor(pic):
  for pX in getAllPixels(pic):
    redValue = getRed(pX)
    greenValue = getGreen(pX)
    blueValue = getBlue(pX)
    newRed = redValue*1.4
    if newRed > 255:
      newRed = 255
    newGreen = greenValue*1.2
    if newGreen > 255:
      newGreen = 255
    newBlue = blueValue*1.0
    if newBlue > 255:
      newBlue = 255
    newColor = makeColor(newRed, newGreen, newBlue)
    setColor(pX, newColor)
  return(pic)

def putSignature(signPic, canvas, tX, tY):
  tPic = duplicatePicture(canvas)
  for sX in range(0, getWidth(signPic)):
    for sY in range(0, getHeight(signPic)):
      sPx = getPixelAt(signPic, sX, sY)
      sColor = getColor(sPx)
      targetPx = getPixelAt(tPic, sX+tX, sY+tY)
      if distance(black, sColor) < 180:
        setColor(targetPx, red)
  return tPic

collage()
```