```python
#!/usr/bin/env python3
# -*- coding: utf-8 -*-

#
# fichier: joli.py
# version: 0.5.0
#  auteur: Pascal CHAUVIN
#    date: 2014/10/28
#
# (tous les symboles non internationaux sont volontairement omis)
#

import string

class joli(object):

  def __init__(self, car ="?"): # const. globale: "?" vaut monome.INDET_DEG_0
    """ - """
    self.__car = car
    self.__nombre = 1
    self.__gauche = None
    self.__droite = None



  def car(self):
    """ - """
    return self.__car



  def nombre(self):
    """ - """
    return self.__nombre



  def a_plat(self, concis =True):
    """ - """
    s = ""

    liaison = " * "
    if concis: liaison = "*"

    if self.__gauche is not None:
      s = liaison + self.__gauche.a_plat(concis)

    if self.__nombre == 1:
      s = "{}".format(self.__car) + s
    else:
      s = "{}^{}".format(self.__car, self.__nombre) + s

    if self.__droite is not None:
      s = self.__droite.a_plat(concis) + liaison + s

    return s



  def __repr__(self):
    """ - """
    return "[joli:\n__car={},\n__nombre={},\n__gauche={},\n__droite={}\n]\n"\
      .format(self.__car, self.__nombre, id(self.__gauche), id(self.__droite))



  def __str__(self):
    """ - """
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    return self.a_plat()


  def inserer(self, x):
    """ _ """
    if not(x in string.ascii_letters):
      return

    if self.__car == x:
      self.__nombre += 1
      return

    if self.__car < x:
      if self.__gauche is None:
        self.__gauche = joli(x)
      else:
        self.__gauche.inserer(x)
      return

    if self.__droite is None:
      self.__droite = joli(x)
    else:
      self.__droite.inserer(x)



  def nombre_noeuds(self):
    """ _ """
    n = 1
    if self.__gauche is not None:
      n += self.__gauche.nombre_noeuds()

    if self.__droite is not None:
      n += self.__droite.nombre_noeuds()

    return n



def format_indet(s, concis =True):
  """ _ """
  if len(s) == 0:
    return ""

  n = joli(s[0])
  s = s[1:]
  for c in s: n.inserer(c)

  return n.a_plat(concis)
```

```
#!/usr/bin/env python3
# -*- coding: utf-8 -*-

#
# fichier: joli_tests.py
# version: 0.5.0
#  auteur: Pascal CHAUVIN
#    date: 2014/10/28
#
# (tous les symboles non internationaux sont volontairement omis)
#

import joli as jo

def test_unitaire0():
  print("\n*** test unitaire 0 ***")

  n = jo.joli('t')
  n.inserer('y')
  n.inserer('a')
  n.inserer('x')
  n.inserer('x')
  n.inserer('b')
  n.inserer('u')

  print("---")
  print(n.a_plat())

  print("---")
  print(n)

  print("---")
  print(repr(n))

  ok = (n.nombre_noeuds() == 6)
  return ok



def test_unitaire1():
  print("\n*** test unitaire 1 ***")

  s = "gnu is not unix"

  n = jo.joli(s[0])
  s = s[1:]
  for c in s:
    n.inserer(c)

  print(n.a_plat())

  ok = True
  return ok



def test_unitaire2():
  print("\n*** test unitaire 2 ***")

  print(jo.format_indet("ce matin un lapin"))

  ok = True
  return ok




def test_unitaire3():
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  print("\n*** test unitaire 3 ***")

  ok = True
  return ok



def test_unitaire4():
  print("\n*** test unitaire 4 ***")

  ok = True
  return ok



def test_unitaire5():
  print("\n*** test unitaire 5 ***")

  ok = True
  return ok



def test_unitaire():
  print("\n*** test unitaire ***")

  ok = True
  return ok



def tests_unitaires():
  return (
    test_unitaire0() and \
    test_unitaire1() and \
    test_unitaire2() and \
    test_unitaire3() and \
    test_unitaire4() and \
    test_unitaire5()
  )



if __name__ == "__main__":
  print(tests_unitaires())
```