

```

import scipy.constants as _sc
import numpy as np

# solar mass, radius, luminosity
Msun = 1.98848e30 # kg
Rsun = 6.957e8 # m
Lsun = 3.828e26 # W

#print("The Mean Molecular Weight for\
# interstellar gas is {:.5}".format(mue_gas))

```

```

if __name__ == "__main__":

```

## SNAKESHIT

A Short Musical

constants = [ Book, Music, and Lyrics by D. Q. Pham

```

    ("solar mass", Msun, "kg"),
    ("solar radius", Rsun, "m"),
    ("solar luminosity", Lsun, "W"),
    ("gravitational constant", G, "m**3 s**-2 kg**-1"),
    ("Planck constant", h, "J s"),
    ("Planck constant, reduced", hbar, "J s"),
    ("electron mass", m_e, "kg"),
    ("proton mass", m_p, "kg"),
    ("neutron mass", m_n, "kg"),
    ("atomic mass unit", m_u, "kg"),
    ("speed of light", c, "m s**-1"),
    ("Boltzmann constant", k, "J K**-1"),
    ("parsec", pc, "m"),
    ("astronomical unit", au, "m"),
    ("year", year, "s"),

```

© D. Q. Pham ("Stefan-Boltzmann constant", sigmaSB, "W m\*\*-2 K\*\*-4")

### Cast of Characters

<u>UNUK:</u>	Woman (countryside or neither city-Asian nor city-White), mezzo-soprano, an astronomy student who neglects Python.
<u>GUDJA:</u>	Woman, soprano, an astronomy professor who brings Python into an everyday language.
<u>MARFIK:</u>	Man, tenor, a student who gets Python.
<u>ALYA:</u>	Woman, alto, a student who gets Python.
<u>YED:</u>	Man, bass, a student who gets Python.

### Place

Classroom

### Time

1990s or 2000s

## Musical Numbers

main( <b>S</b> )	Unuk
repeat( <b>STRANGLE</b> )	Company
print( <b>SLITHER OFF</b> )	Unuk and Gudja

Setting: A classroom contains a desk.

At Rise: UNUK, carrying a stack of papers, enters.

(Song: "S")

**UNUK** (breathlessly.)

UNUK. PLEASE TAKE A BREATH,  
UNUK. SEMESTER'S DONE, UNUK.  
ASTRONOMY, UNUK. WEED-OUT  
COURSES OVER. DEEP RELEVANT  
HOMEWORK.

(Placing the stack on the desk.)

THE SCOPE OF THE TELE.  
BUTTERFLIES IN BELLY. FARM'S  
BEEN STELLAR, UNUK.  
CONSTELLATIONS APART. TIME  
TO HOGTIE THE DARK.  
SUPERNOVAE TO START.  
LAGRANGIAN'S BEEN HARD.

(MARFIK, ALYA, and YED stroll in.)

COMMUNITIES OF STARS. SIGN  
THAT ALL LEAVE A MARK.

(GUDJA, carrying a portable computer, marches in.)

A HOLY STAY, GUDJA.

(GUDJA examines the stack.)

THE BREAK'S BEGUN.

(GUDJA removes the stack. She places the computer on the desk.)

(They gather around the desk.)

(Song: "STRANGLE")

### **GUDJA**

ALL I ASK OF YOUR MENTAL  
ENVI-MENT. SAVE IT. EXPORT  
THEM. YA'LL WERE TAUGHT THIS  
IN HIGH SCHOOL.

(UNUK alienates the computer.)

PRESENT, WELCOME BACK TO  
THE FUTURE!

(Activating the computer.)

(The computer throttles.)

(UNUK chokes up.)

TIME'S JUST A SCALAR  
QUANTITY THOUGH.

(Pointing to the computer.)

FILE... COMPUTE ORBITS AND  
ENERGIES FOR THE SMALLEST  
TIMESTEPS FOR EACH  
INTEGRATION. YED. ALYA.  
MARFIK. U. N N SERPENTIS HAS  
AN ELIPSICAL PERIOD. IT IS ONLY  
PYTHON.

(Moving aside.)

(MARFIK, ALYA, and YED take control of the computer.)

MARFIK	ALYA	YED
README M D.	RUN MATPLOTLIB.	OPEN NUMPY.
SOLAR	LIGHT SPEED	ATOMIC MASS
LUM-NOSITY.	INVERSE M S.	UNIT.

(UNUK discreetly takes a piece of paper from the hidden stack.)

ENERGY PLOT FUNCTIONS AND  
THE OUTPUT.

(UNUK writes on the paper.)

(MARFIK, ALYA, and YED turn their attention to UNUK.)

WHITE.	COLD.	DWARF.
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(Taking the paper from UNUK.)

COLD WHITE DWARF STAR.  
CALC-LATE MASS RADIUS. FOR  
US.

(Setting UNUK up to the computer.)

MAKE YOURSELF USEFUL.	TRY TO BE ON TOP.	DON'T GET LEFT BEHIND.
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(UNUK holds her head.)

YES PRESSURE.	YES PRESSURE.	YES PRESSURE.
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(Pointing to the computer.)

(UNUK glances at the paper.)

(MARFIK, ALYA, and YED rip up the paper and scour through other papers in the hidden stack.)

**UNUK** (disorientedly.)

STRANGLEHOLD. COULD NOT BE  
FELT WHILE WAND-RING A  
BARNYARD. FULLER OF THEM  
MICE.

(Toying with the mouse or touchpad.)

**GUDJA**

PYTHON IS ELEGANT SYNTAX,  
SCRIPTING.

**UNUK**

ITS TYPE'S TOO... DYNAMICALLY.

**GUDJA**

PERHAPS IT'S YOUR LIFE THAT  
NEEDS TO CHANGE THROUGH  
RESEARCH, LEARN TO CAST THE  
NET.

(Moving aside.)

**UNUK**

NOTHING GOOD COMES OUT OF  
WRANGLING PYTHON ON THE  
WEB.

(Typing then entering on the computer.)

WELCOME TO THE JAVA...

(Scrolling with conviction.)

(MARFIK, ALYA, and YED slithers back. They retake control of the computer.)

**MARFIK**

TOO MUCH  
PRESSURE.  
'QUATION OF  
STATE UNIT.  
P-D RELATIONSHIP, BRANCH UNCOMMIT.

**ALYA**

TOO MUCH  
PRESSURE.  
'QUATION OF  
STATE TESTED.

**YED**

DENS-TY  
DEFINED.  
'QUATION OF  
STATE UNIT.

(UNUK forces herself onto the computer. She  
hastily types.)

(MARFIK, ALYA, and YED force UNUK off the  
computer. They continue typing.)

STOP WITH  
ARTISTRY.  
SEE, NOTHING TOO  
COMPLEX.  
PLUS, 3 D AIN'T  
WORTH IT.  
PLUS,

STOP THIS  
IMPRI-TY.  
SEE, DO NOT FEEL  
SO STRESSED.  
PLUS, 3 D ARE FOR  
NERDS.  
PLUS,

STOP FEELING  
FREELY.  
SEE, JUST GIVE IT  
A REST.  
PLUS, 3 D LOADS  
TOO SLOW.  
PLUS,

(Directing towards each wall except the fourth wall.)

BOXED IN.

BOXED IN.

BOXED IN.

(Boxing in UNUK into the computer.)

**UNUK** (reluctantly.)

FOREST WITH ALL INTRICATE  
PARTS ARE MY MORAL CODE.  
NATURE SNAKING AROUND WILL  
NOT DO.

(UNUK types away.)

FLUSH. FOR CODES SO LUSH.  
BYTE STREAM TO PUBLIC  
SERVER.

(GUDJA takes control of the computer.)



**GUDJA**

PRIVATE. PRIVATE. PRIVATE.

(Returning the computer then scouring through  
papers in the hidden stack.)

**MARFIK**

**ALYA**

**YED**

STRANGLEHOLD.

STRANGLEHOLD.

STRANGLEHOLD.

(GUDJA returns the computer to UNUK.)

**UNUK**

JAVA. IT PROVIDES THE AIR TO  
BREATHE.

**MARFIK**

**ALYA**

**YED**

LANGUAGE NATIVE TO HER PEOPLE.

**UNUK** (sorely.)

OUGHT FOR ME TO INTEGRATE.  
SERVES YOU. LET ME JUST...

(Pressing CTRL and C.)

COPY.

(GUDJA, MARFIK, ALYA, and YED express  
shock.)

PASTE.

(Mashing CTRL and V.)

**GUDJA**

YOU HAVE JUST BROKEN THE  
CODE OF...

**MARFIK**

**ALYA**

**YED**

OFF... OF THE LAWS OF ENTROPY.

**UNUK**

THOUGH FRAMEWORK'S  
DEBUGGED, JUST FIX CENTRAL  
PRESSURE ARRAY FOR  
MASS-RADIUS TABLE IN A  
LIGHTWEIGHT CLASS.

**GUDJA**

CONDUCT. SEE ME AF...

**MARFIK**

**ALYA**

**YED**

THIS BOX HAS NO ROOM FOR A  
PARTICULAR MOLECULE.

**UNUK**

PLOT ROOM FOR JAVA...  
PROGRAMMERS.

**MARFIK**

**ALYA**

**YED**

VET-NAR-ANS.

ENGINEERS.

PERFORMERS.

(Pointing out.)

**UNUK**

I AM JUST AS MUCH OF AN  
ASTRONOMER AS YOU ARE WITH  
YOUR PRIVILEGED SELVES WITH  
TECHNOL-GIES.

**MARFIK**

**ALYA**

**YED**

UNUK. FAILURE.

UNUK. CODE  
BREAKER.

UNUK. CHEATER.

**UNUK**

I AGREE TO OWN THIS FOR I HAVE  
ONLY CHEATED MYSELF. OH  
WELL.

(Looking to GUDJA for approval.)

THIS ASSIGNMENT, GIVE ME A  
ZERO.

**MARFIK**

NOT FOR US.

**ALYA**

NOT FOR US.

**YED**

NOT FOR US.

**UNUK**

PLEASE, YOU'RE AN INTEGRAL  
HERO.

**GUDJA**

'TERWARDS.

**UNUK**

SAKE OF GROUP, MY WILL SAYS  
I'LL JUST HAVE TO RETAKE WITH  
CLASS.

(GUDJA ponders at the hidden stack.)

COLLEGE WON'T JUST BE FOR  
THE RICH AS THIS STAR HOLDS  
THE MANTLE OF THE FIRST  
GENERATION.

(Feeling the weight of emotion.)

CHOKE.

(GUDJA dismisses MARFIK, ALYA, and YED.)

**UNUK (Cont.)**

I WILL NEVER DROP...

**MARFIK**

OUT.

**ALYA**

OUT.

**YED**

OUT.

(Exiting.)

(GUDJA deactivates the computer. She directs UNUK to her side. She grabs and sets down the stack.)

(Song: "SLITHER OFF")

**GUDJA**

YOU DON'T BELONG ON THIS  
COURSE. YOUR WORK'S ALWAYS  
BEEN TOO COMPLEX.

(Pointing out the stack.)

I KNEW WELL BEFORE I TOOK  
YOU IN. JAVA'S A REL-TIVELY  
NEW LANGUAGE.

(Handing the computer to UNUK.)

GET AHEAD WHILE YOU CAN.  
DON'T GET CUT OFF. THERE ARE  
TELESCOPES IN THE DISTANCE.  
'STRON-MERS THAT CODE IN ALL  
TONGUE. EXECUTE THE SCRIPT.

(Waving UNUK off.)

(UNUK appears mystified.)

*RUN THE PROGRAM NOW!*

(Departing.)

(UNUK may hold the computer. She may run out in the open. She activates the computer. She knows there is a lot to unpack.)

## UNUK

ROUND UP FOR AN ENTIRE  
UNIVERSE.

(Inhaling.)

AIR.

(Feeling lonely.)

‘ROR PROP-GATION.

(Collecting herself.)

DATA. READING. WRITING.  
MANIPULATING.

(Feeling powerful.)

SYSTEM EXIT. ZERO.

(Pressing.)

FADE OUT

FIN