



UNIVERSIDAD SANTO TOMÁS
PRIMER CLAUSTRO UNIVERSITARIO DE COLOMBIA

VIGILADA MINEDUCACIÓN - SNIES 1704



Modelling Water Resources with programming languages

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Artificial neural networks

¿What is observed in these images? ¿The computer will be able to recognize?



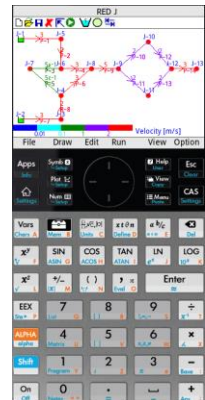
<https://ramirezquispe1.blogspot.com/2020/09/neuronaes-artificiales-redes.html>

Programming Languages



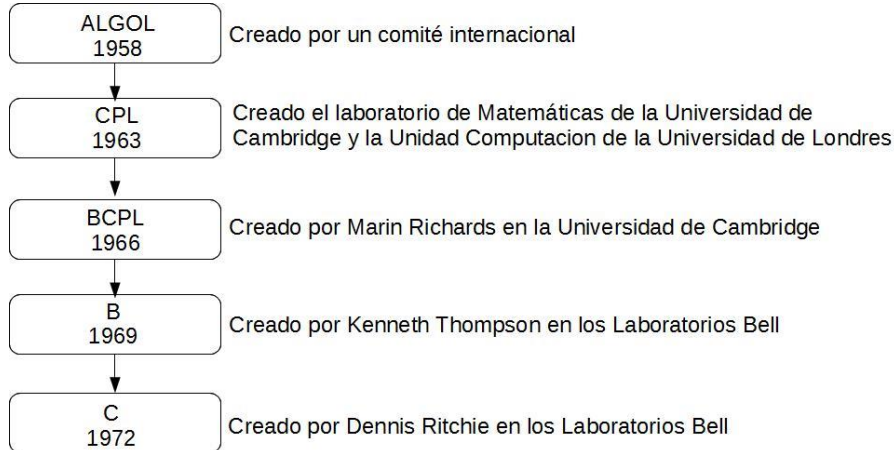
```
#include <stdio.h>
int main()
{
    ....
}
```

← Archivo de cabecera
← Cabecera de función
← Sentencias





Language C



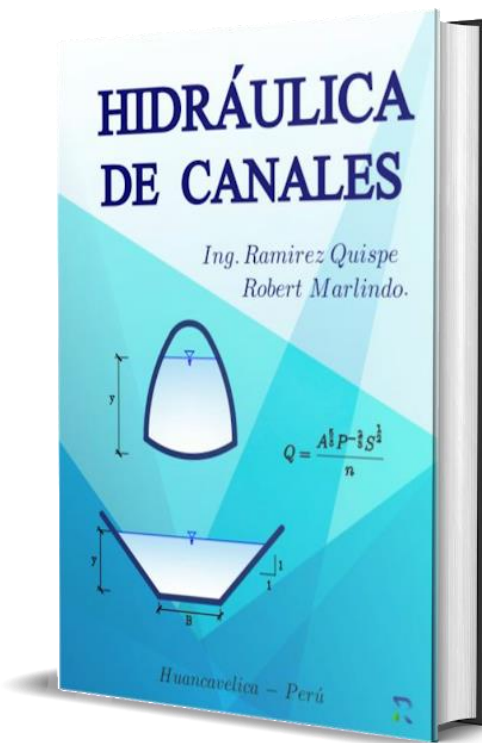
Aplicaciones escrito en C



Software de GIS escrito en C++

<http://cajasdepastillas.blogspot.com/2018/10/lenguaje-c.html>

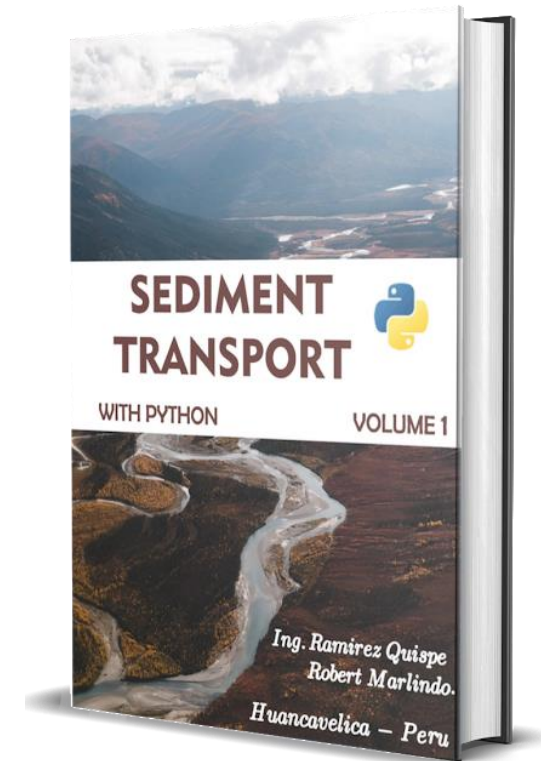
My books about Hydraulic



<https://ramirezquispe1.blogspot.com/2020/09/hidraulica-de-canales-ramirez-quispe.html>

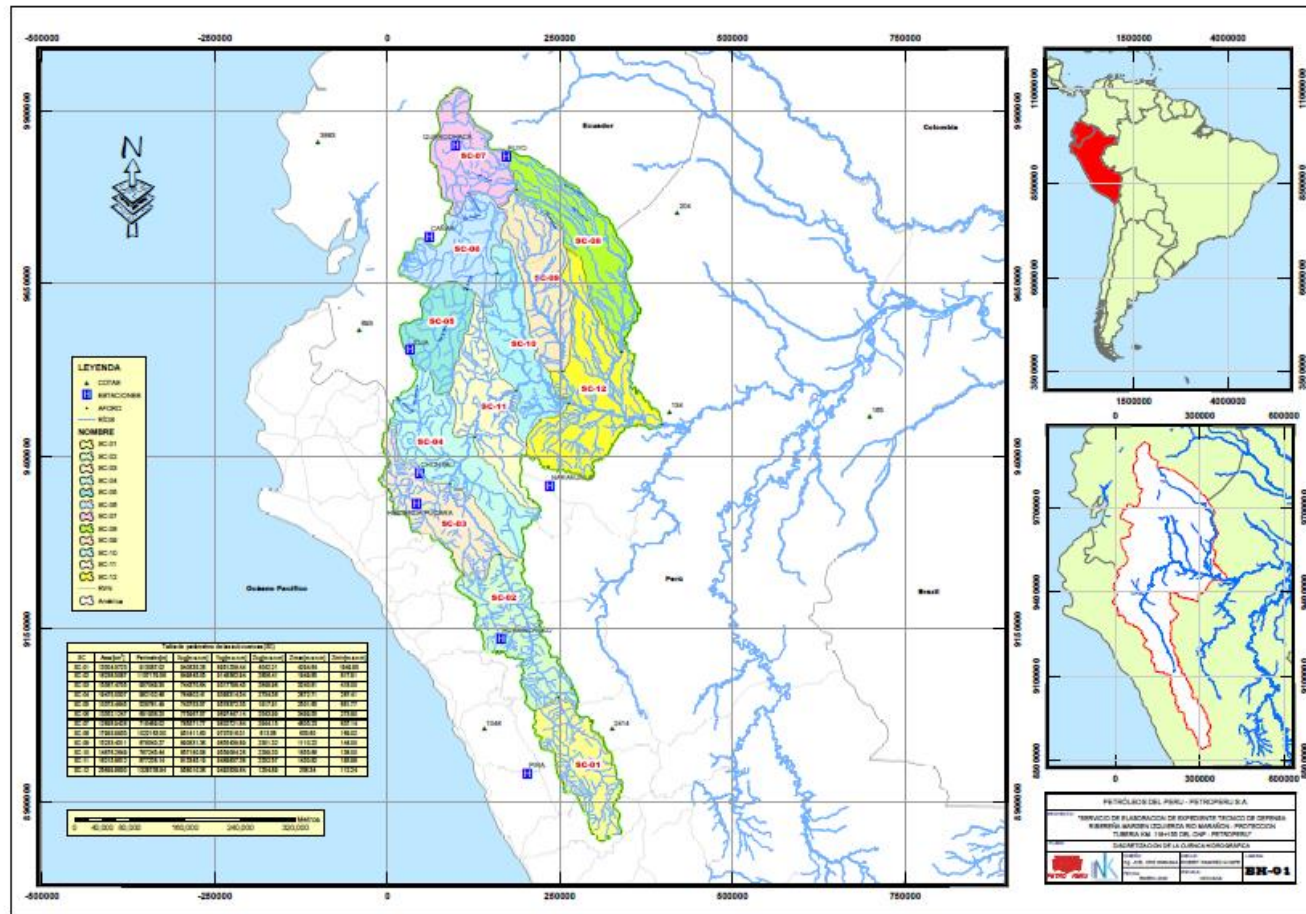


<https://ramirezquispe1.blogspot.com/2021/03/transporte-de-sedimentos-con-python.html>



<https://ramirezquispe1.blogspot.com/2021/03/sediment-transport-with-python-english.html>

Python and Arcgis

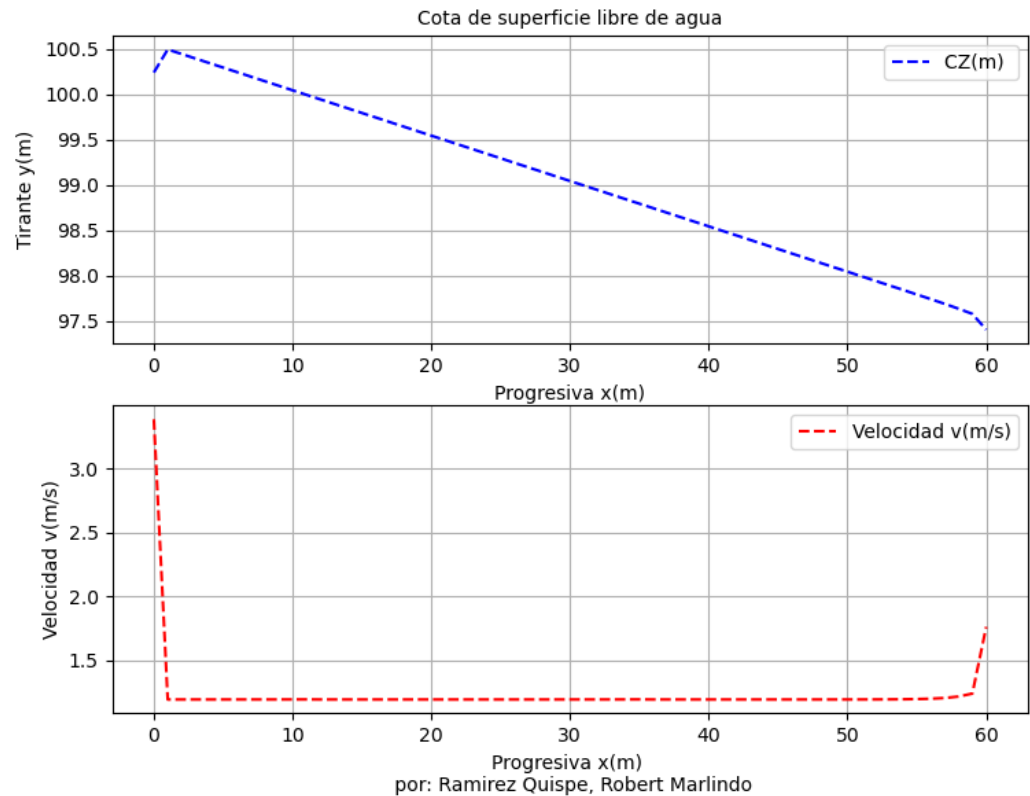


<https://www.youtube.com/watch?v=bVw2TW6ErD8>

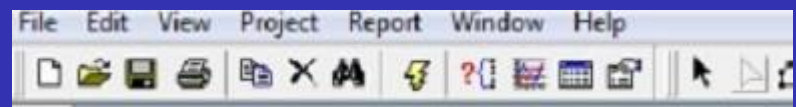


Python and Hec Ras

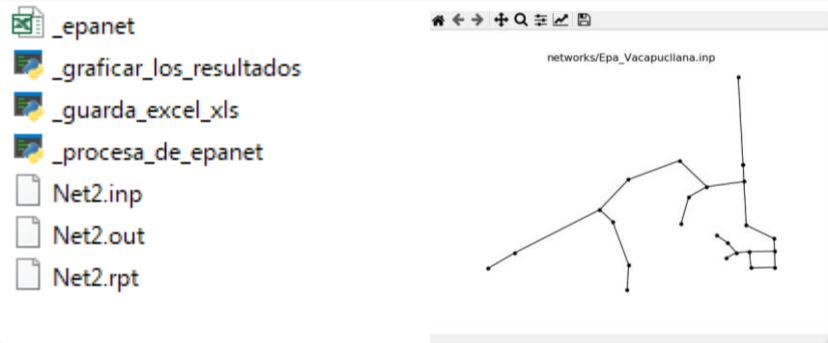
- Quiz1.f01
- Quiz1.g01
- Quiz1.g01.hdf
- Quiz1.p01.hdf
- Quiz1.O01
- Quiz1.p01
- Quiz1.prj
- python_hec_ras
- Quiz1



<https://www.youtube.com/watch?v=nkpGGQ0YGJU>



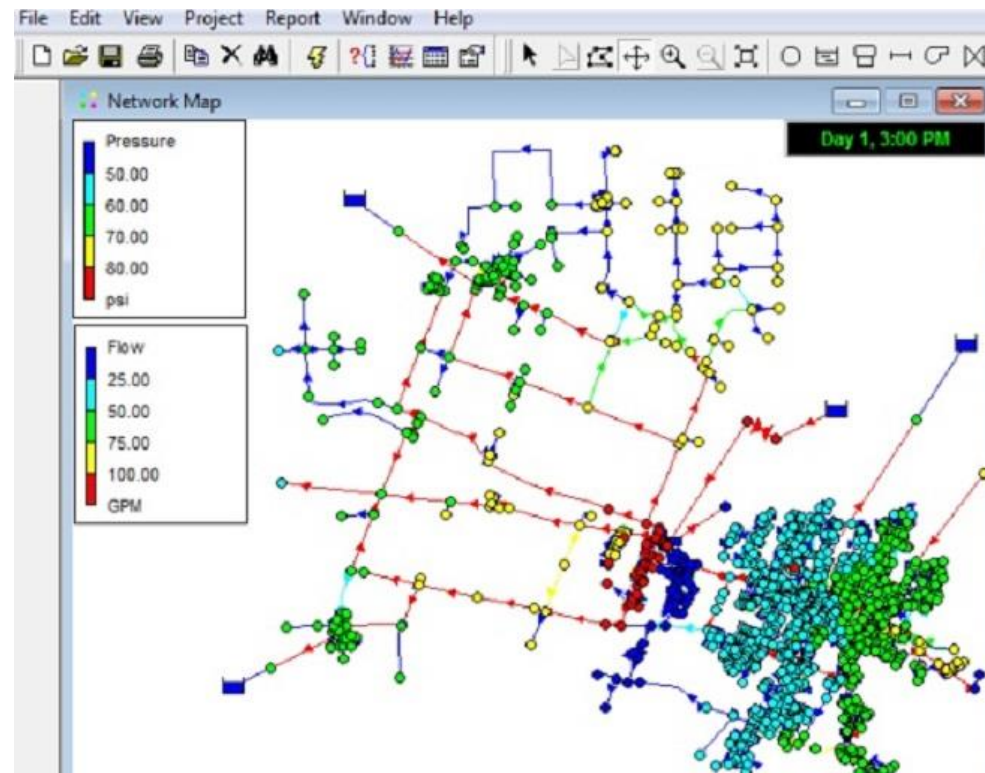
Python and Epanet



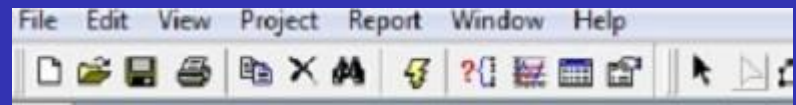
```
import epanet2.epanet2 as epa
import xlwt #para crea un excel .xls
wb = xlwt.Workbook()
ws = wb.add_sheet('nodos') #hoja de nodos
wt = wb.add_sheet('tuberias') #hoja de tuberias

#=====
nd=2 #configurar numeros de decimales
ne=10 #numero de espacio

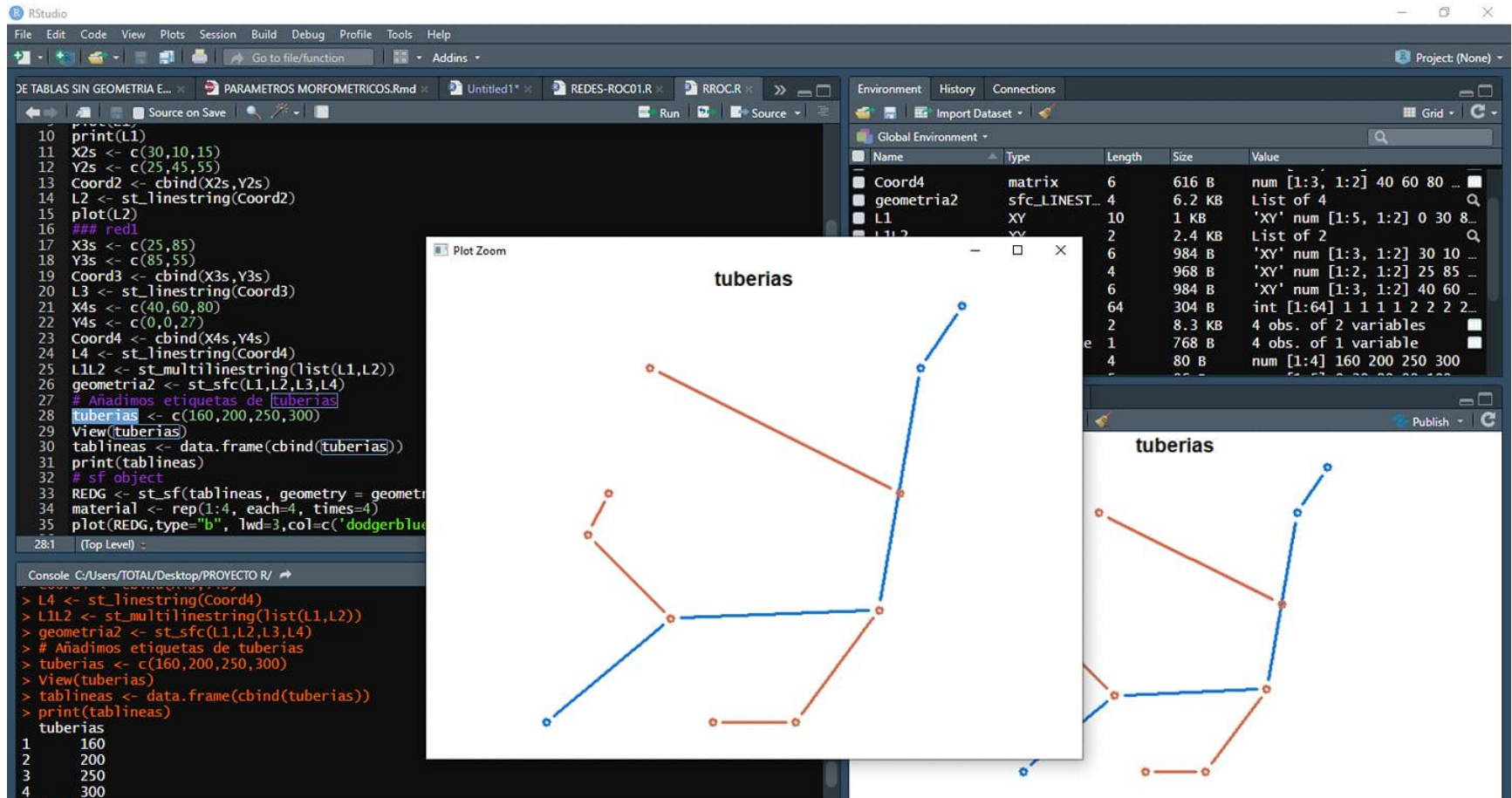
#Asignar la ruta del fichero inp analizar
path_Inp = r"D:/Esc/ejm_epanet/Net2.inp";
path_Rpt = r"D:/Esc/ejm_epanet/Net2.rpt";#.rpt
path_Out = r"D:/Esc/ejm_epanet/Net2.out";#.out
```



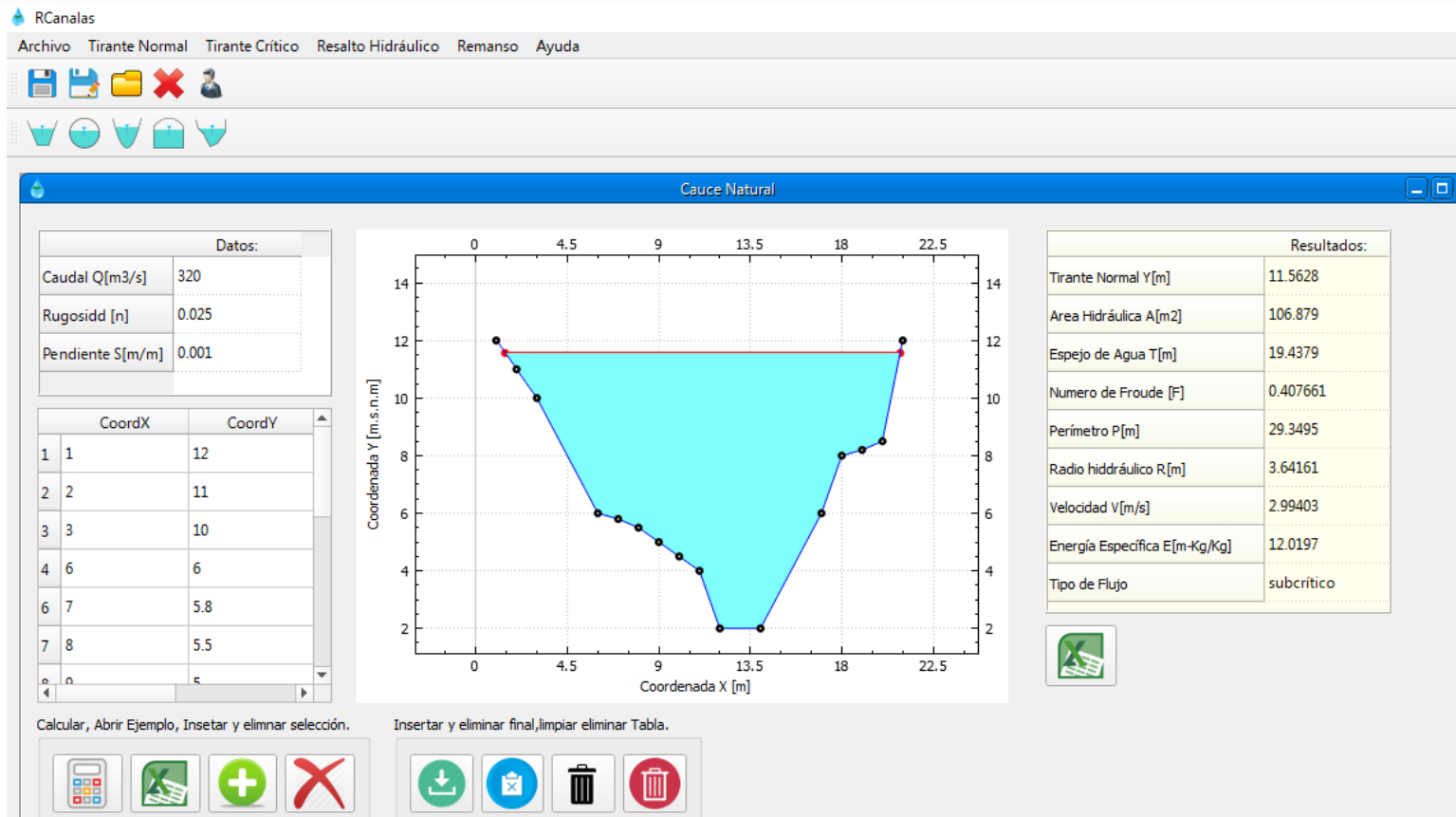
<https://www.youtube.com/watch?v=T3WcnDsTiP0>



Epanet - R (R-studio)

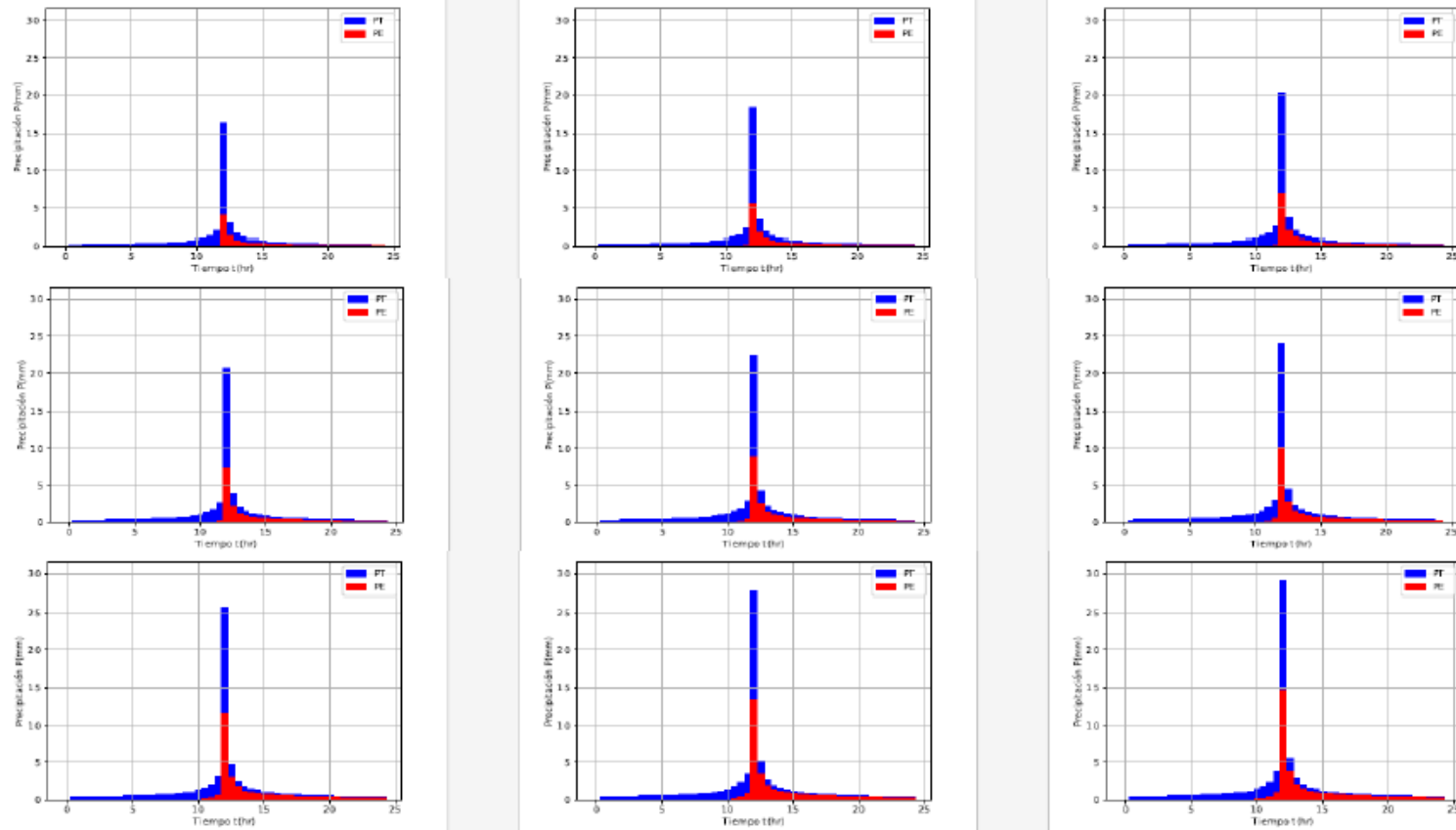


Software (RCanales) in C++



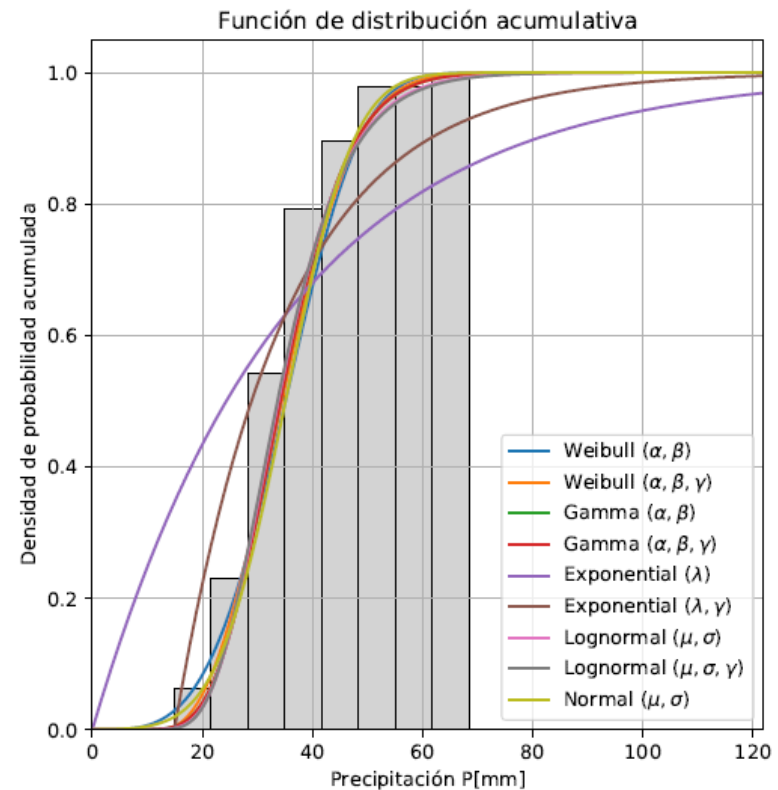
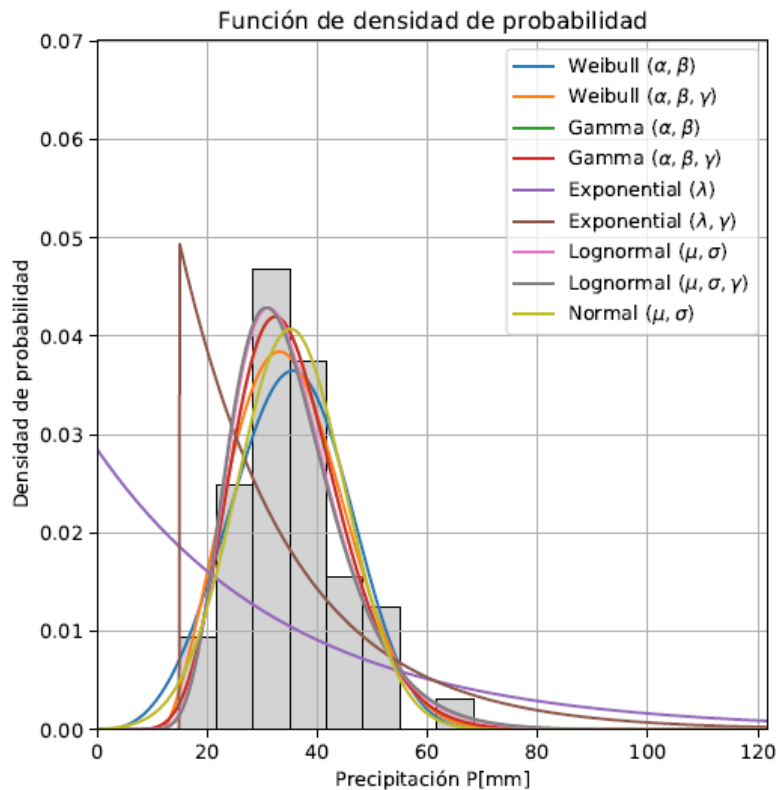
Download free: <https://www.youtube.com/watch?v=7b8DFpX300k>

Extreme event analysis – with Python



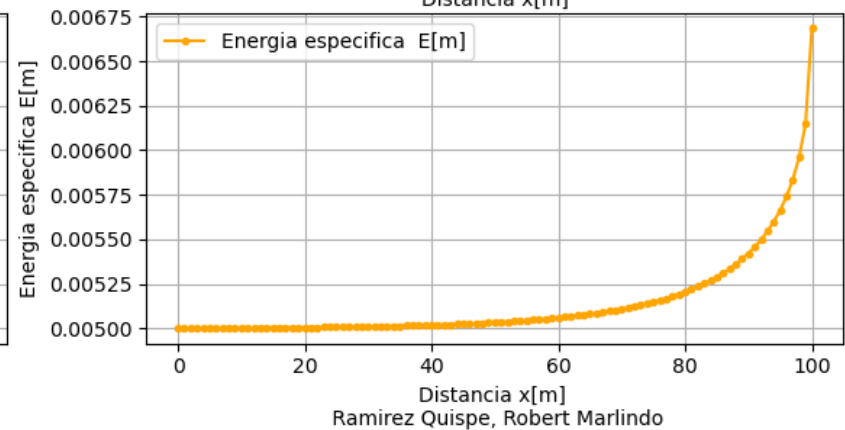
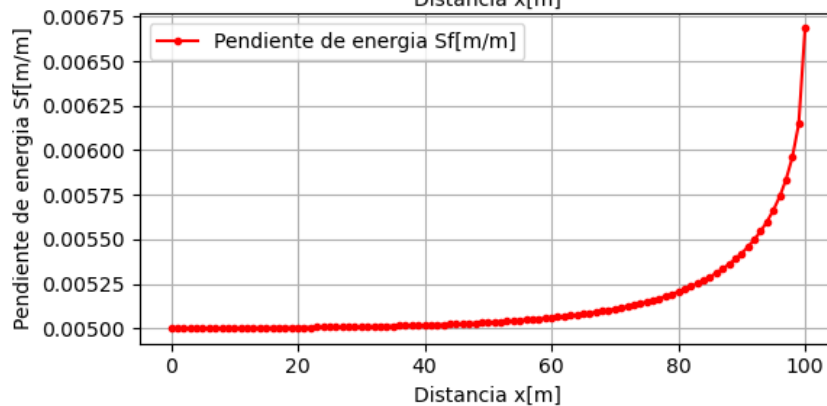
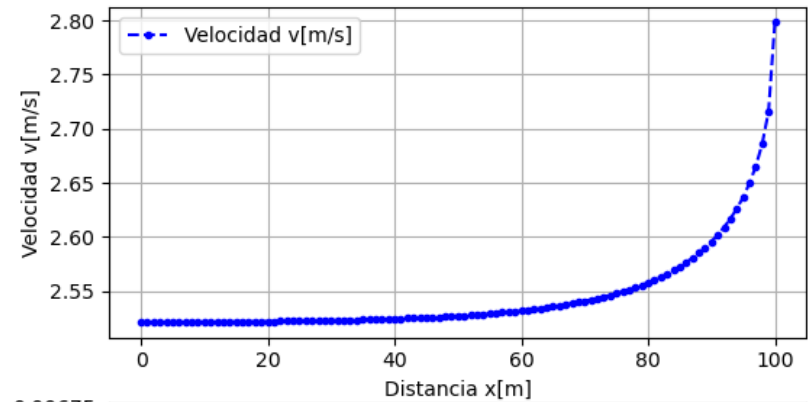
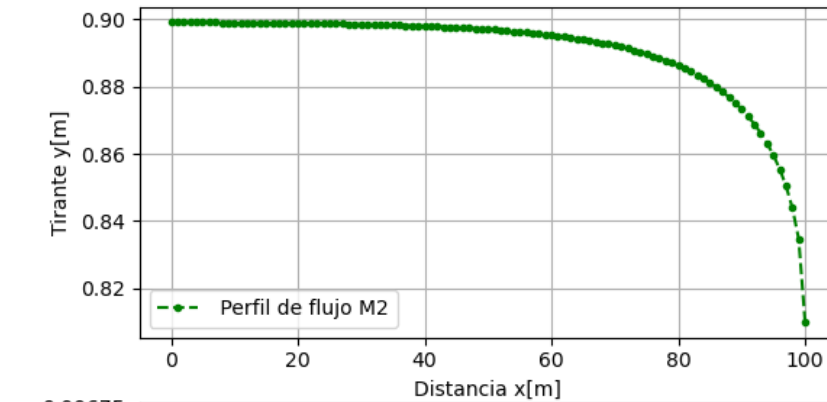
<https://ramirezquispe1.blogspot.com/2020/09/analisis-de-eventos-extremos.html>

Extreme event analysis – with Python



<https://ramirezquispe1.blogspot.com/2020/09/analisis-de-eventos-extremos.html>

Languages C++, R and Python

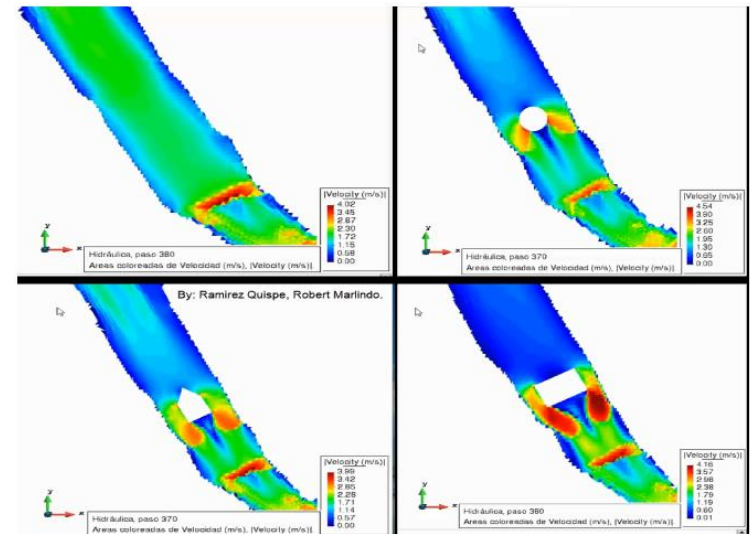


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<https://ramirezquispe1.blogspot.com/2021/03/lenguajes-c-r-entorno-r-studio-y-python.html>

Free software on water resources

- Hec-Ras 1D/2D.
- Iber 2D.
- iRiC.
- OpenFoam.
- Telemac 2D/3D.
- Delft3D.
- Qgis
- Saga-Gis
- PRMS (Precipitation-Runoff Modeling System)
- Swat (soil and water at basin level)
- Modflow
- MT3DMS (simulates advection, scattering / diffusion and adsorption/absorption chemical reactions of contaminants in groundwater)



By. Robert

Programming languages

- Python

<https://www.python.org/>

<https://drive.google.com/drive/folders/16aL9mkKNmxTBXlrw-EndpdJ0DkllwEqd?usp=sharing>

- C++, Fortran. Python, Ruby and others

<https://www.mycompiler.io/>

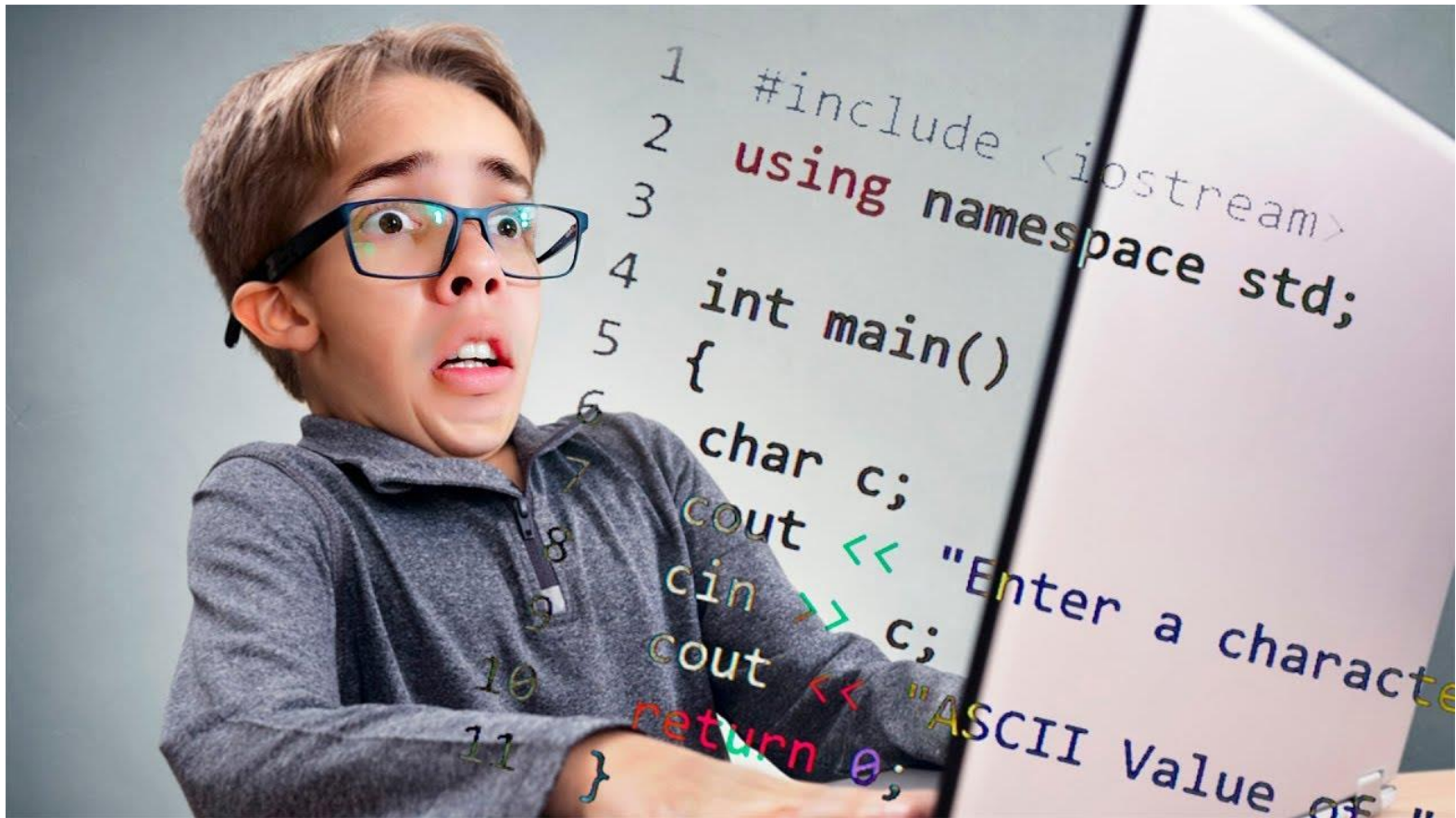
- R Online – You can work from GitHub

<https://rstudio.cloud/>

- Anaconda - Online

<https://cocalc.com/projects/d1e3a5b9-ecf3-498d-80bd-26e884f9d7bf/files/?session=default>

How to start programming?



Reflections.

*Los ordenadores son increíblemente rápidos, precisos, y estúpidos;
los humanos son increíblemente lentos, imprecisos, y brillantes.
Juntos, su potencia está más allá de lo imaginable.*

(Albert Einstein)

*No importa cuán bueno sea, un modelo no es
la realidad, una simulación no es
un experimento, un modelo no brinda
evidencia, a lo mucho brinda
argumentos, ¡siendo ya demasiado!*

(Ambrose, B)

*Más vale una silvestre medición,
antes que una computarizada
adivinación* *(Reyes, L)*

Una rana no se bebe la charca en la que vive

(Proverbio Inca)

Bibliography

- <https://www.youtube.com/watch?v=G2FCfQj-9ig&list=PLU8oAlHdN5BlvPxziopYZRd55pdqFwkeS>
Course about programing in Python
- <https://ramirezquispe1.blogspot.com/>
- <https://drive.google.com/drive/folders/16aL9mkKNmxTBXlrw-EndpdJ0DkllwEqd?usp=sharing>
.ppt

Thanks so much.

<https://ramirezquispe1.blogspot.com/>