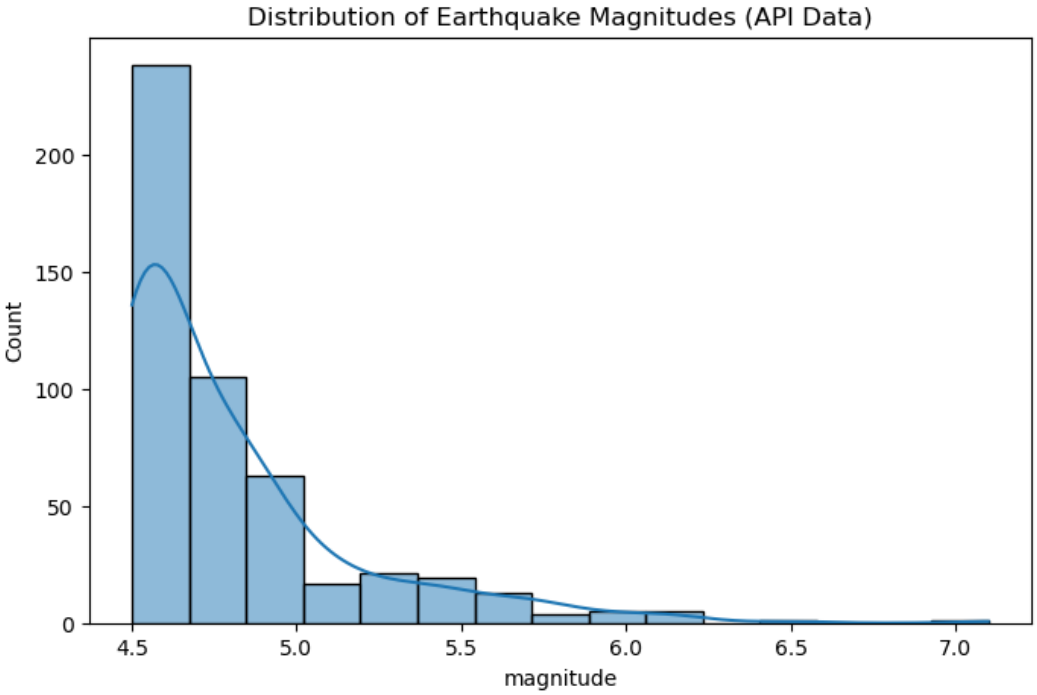
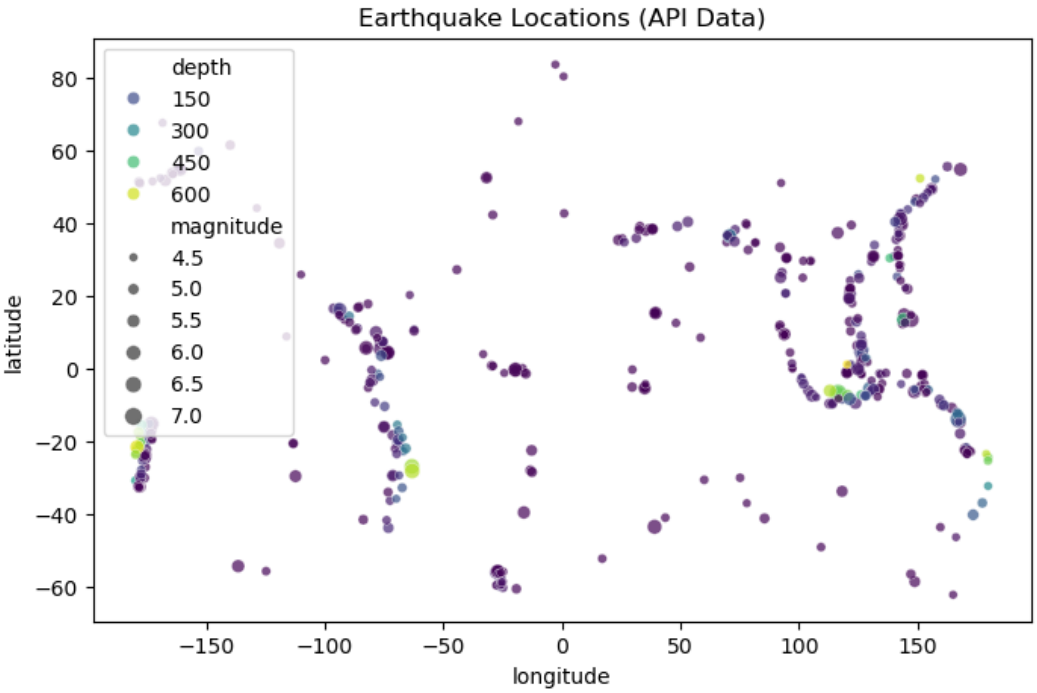
Notebook Output Screenshots

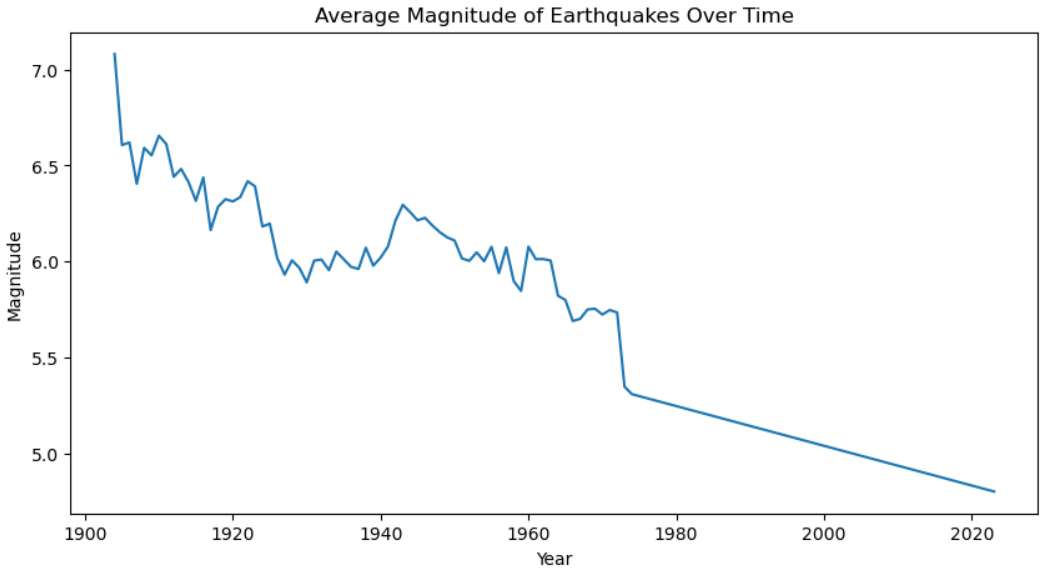
Output 1



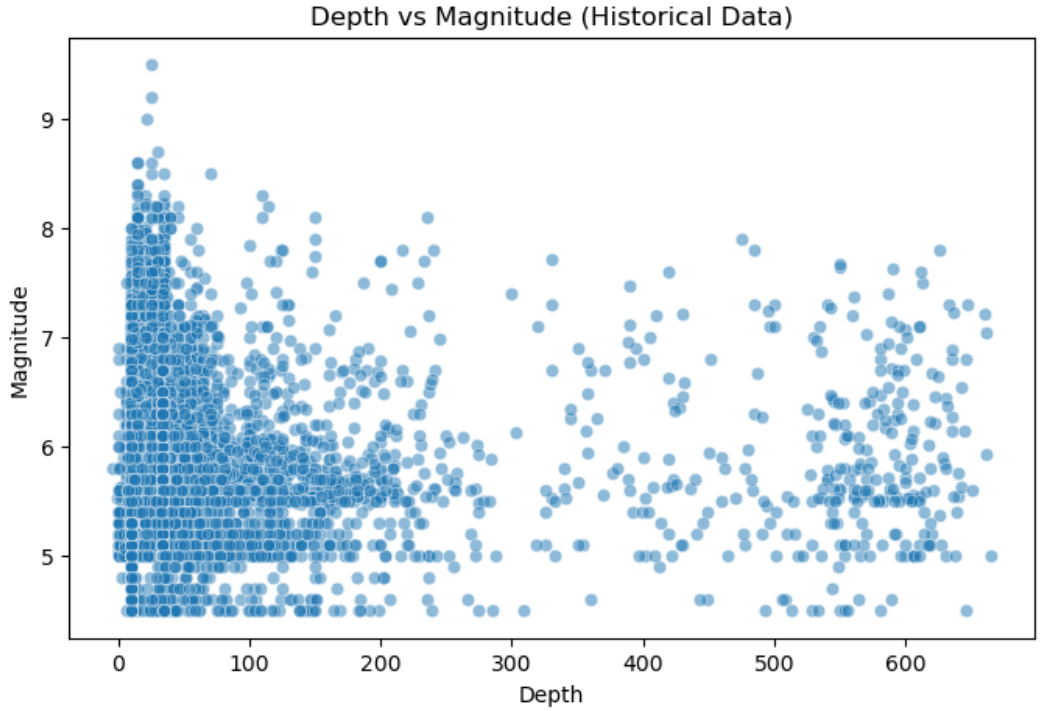
Output 2



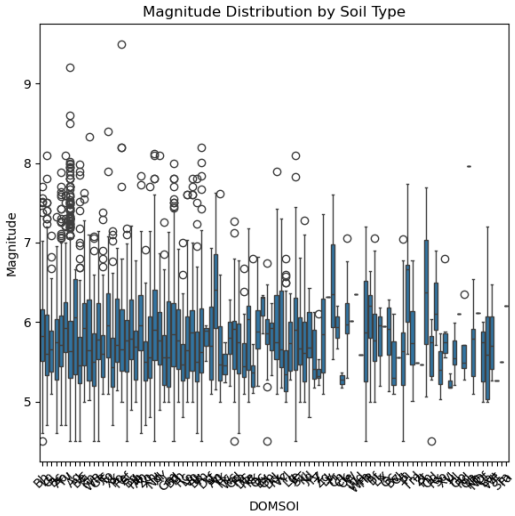
Output 3

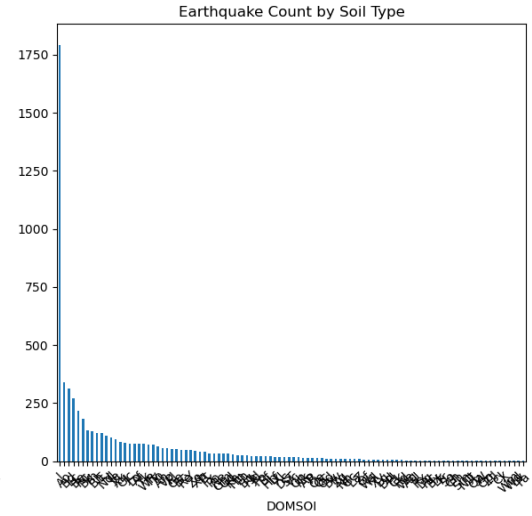


Output 4

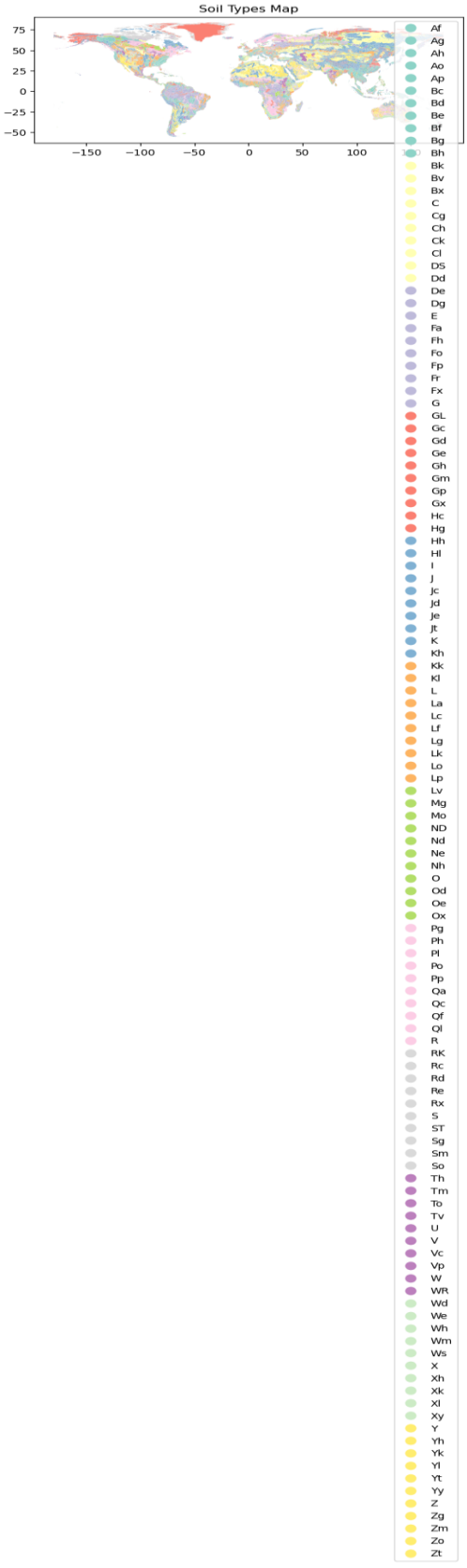


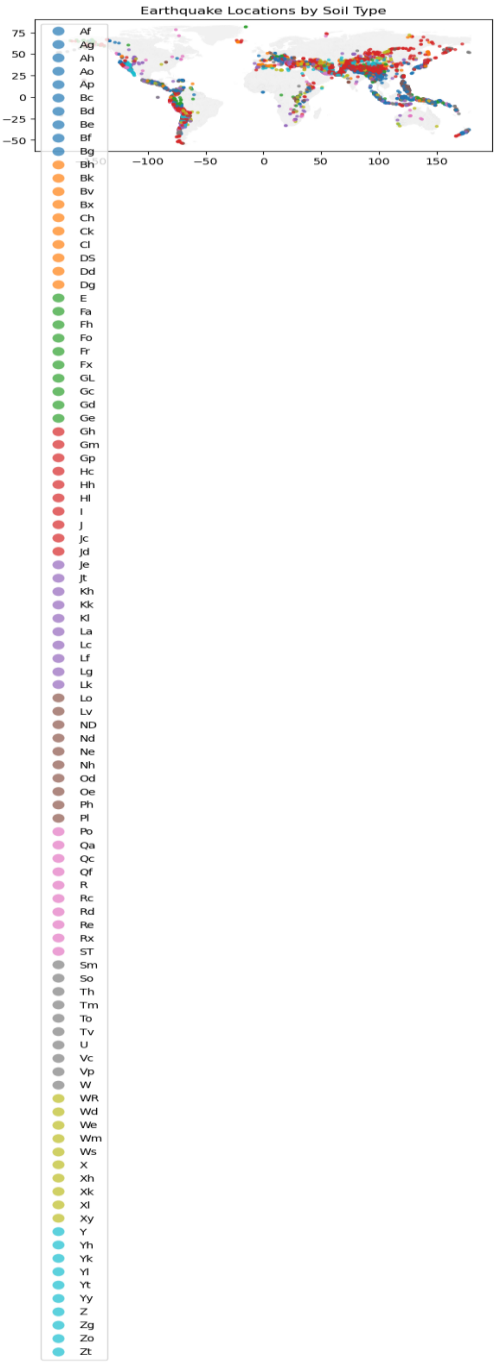
Output 5


Magnitude Distribution by Soil Type
Magnitude
DOMSOI

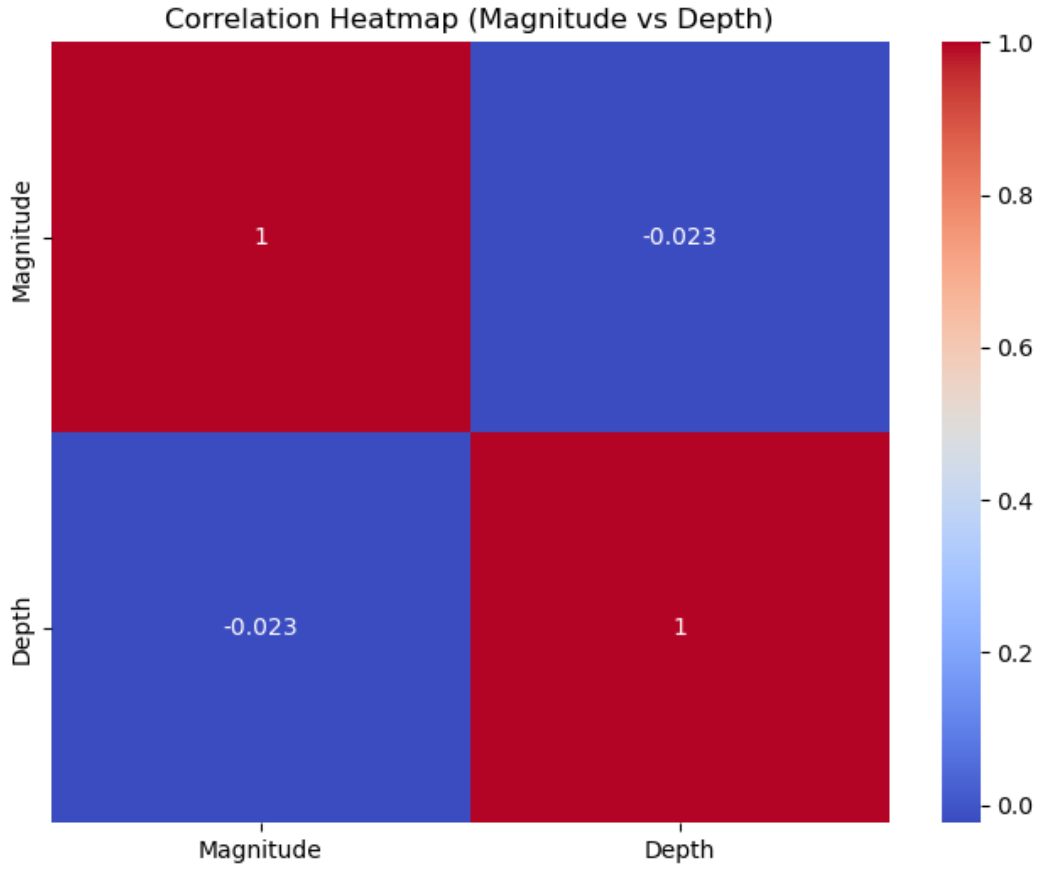

Earthquake Count by Soil Type
DOMSOI

Output 6

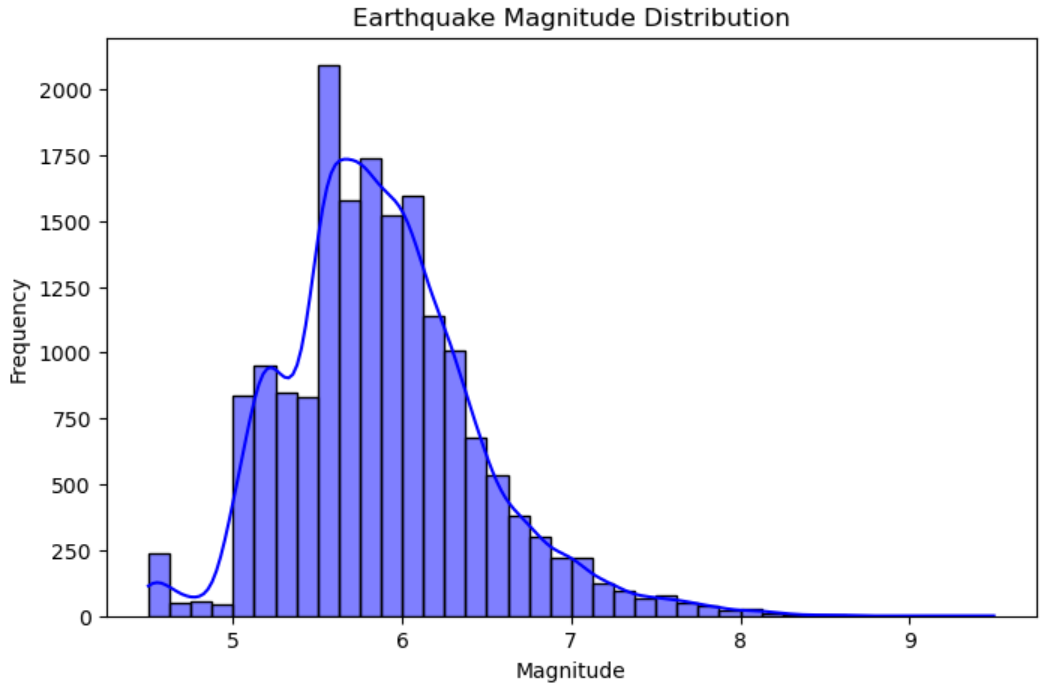

Soil Types Map
75
50
25
0
−25
−50
−150
−100
−50
0
50
100
Af
Ag
Ah
Ao
Ap
Bc
Bd
Be
Bf
Bg
Bh
Bk
Bv
Bx
C
Cg
Ch
Ck
Cl
DS
Dd
De
Dg
E
Fa
Fh
Fo
Fp
Fr
Fx
G
GL
Gc
Gd
Ge
Gh
Gm
Gp
Gx
Hc
Hg
Hh
Hl
I
J
Jc
Jd
Je
Jt
K
Kh
Kk
Kl
L
La
Lc
Lf
Lg
Lk
Lo
Lp
Lv
Mg
Mo
ND
Nd
Ne
Nh
O
Od
Oe
Ox
Pg
Ph
Pl
Po
Pp
Qa
Qc
Qf
Ql
R
RK
Rc
Rd
Re
Rx
S
ST
Sg
Sm
So
Th
Tm
To
Tv
U
V
Vc
Vp
W
WR
Wd
We
Wh
Wm
Ws
X
Xh
Xk
Xl
Xy
Y
Yh
Yk
Yl
Yt
Yy
Z
Zg
Zm
Zo
Zt


Earthquake Locations by Soil Type
75
50
25
0
−25
−50
−100
−50
0
50
100
150
Af
Ag
Ah
Ao
Ap
Bc
Bd
Be
Bf
Bg
Bh
Bk
Bv
Bx
Ch
Ck
Cl
DS
Dd
Dg
E
Fa
Fh
Fo
Fr
Fx
GL
Gc
Gd
Ge
Gh
Gm
Gp
Hc
Hh
Hl
I
J
Jc
Jd
Je
Jt
Kh
Kk
Kl
La
Lc
Lf
Lg
Lk
Lo
Lv
ND
Nd
Ne
Nh
Od
Oe
Ph
Pl
Po
Qa
Qc
Qf
R
Rc
Rd
Re
Rx
ST
Sm
So
Th
Tm
To
Tv
U
Vc
Vp
W
WR
Wd
We
Wm
Ws
X
Xh
Xk
Xl
Xy
Y
Yh
Yk
Yl
Yt
Yy
Z
Zg
Zo
Zt

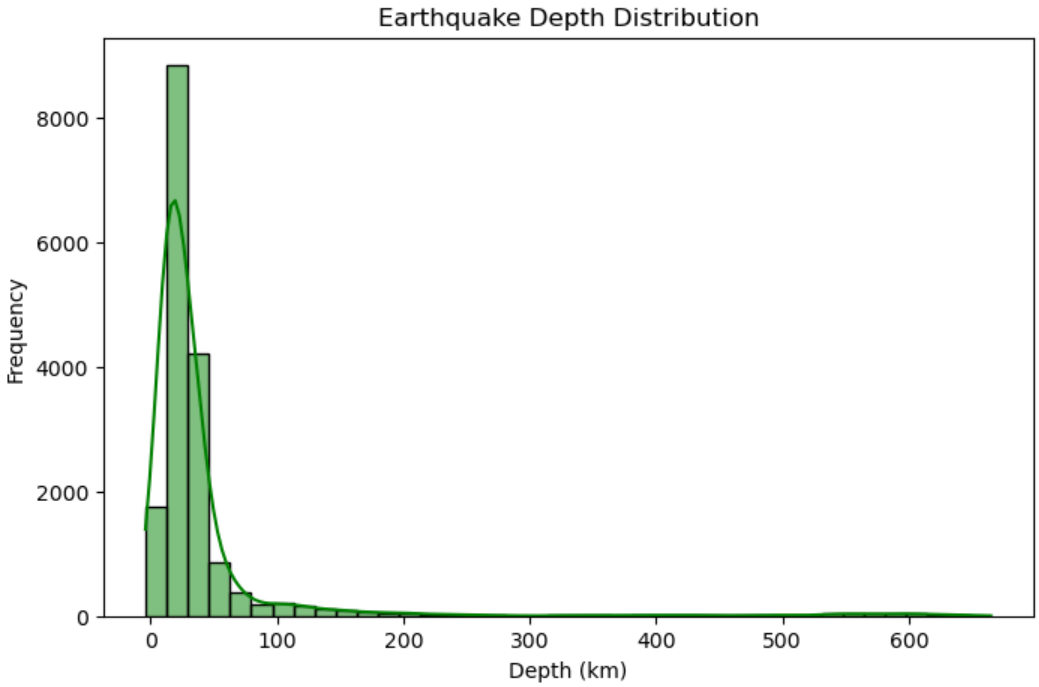
Output 7



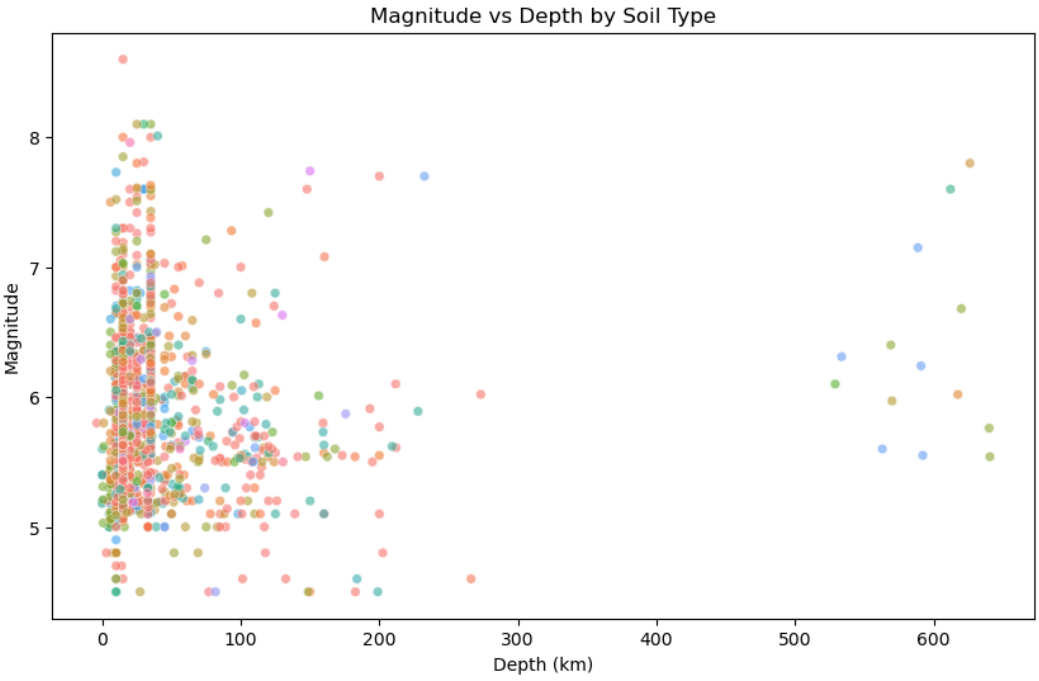
Output 8



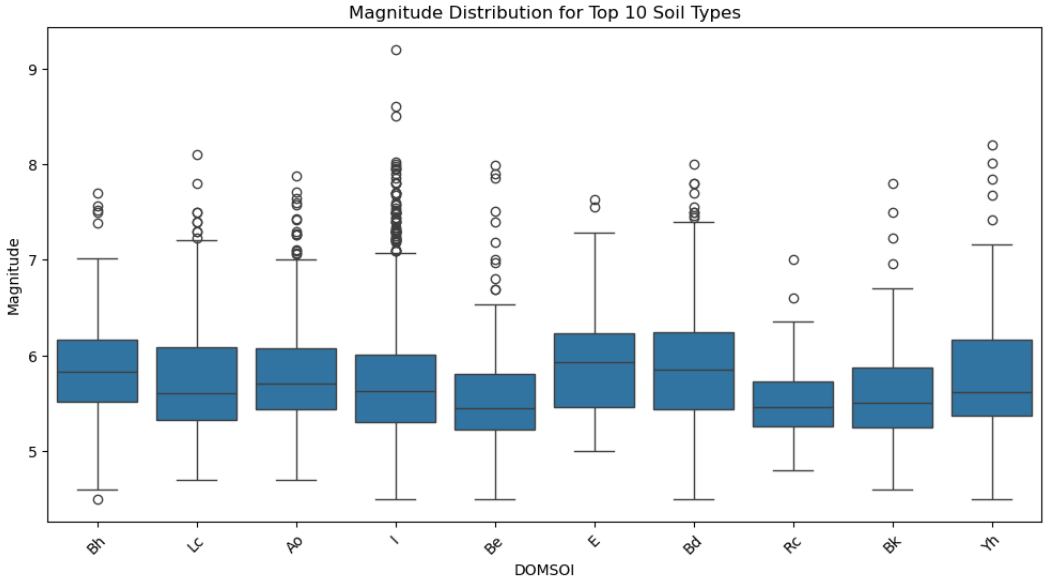
Output 9



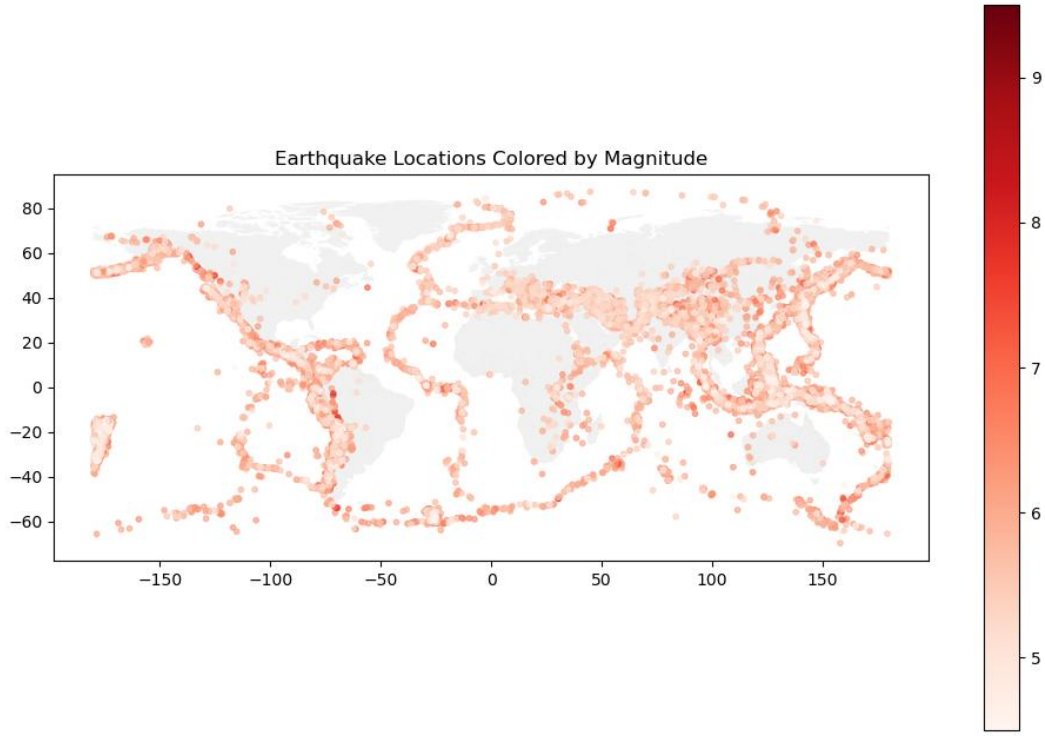
Output 10



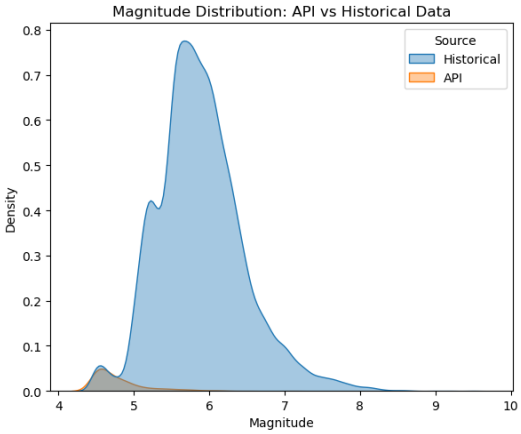
Output 11

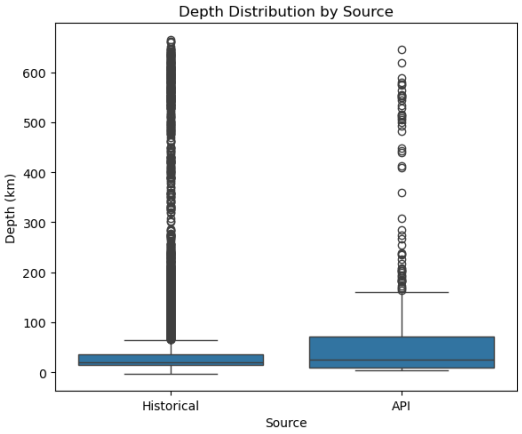


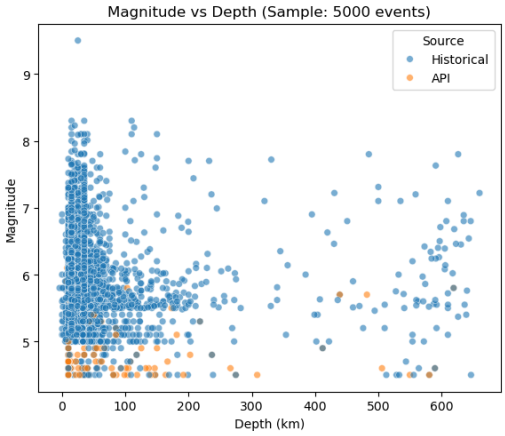
Output 12

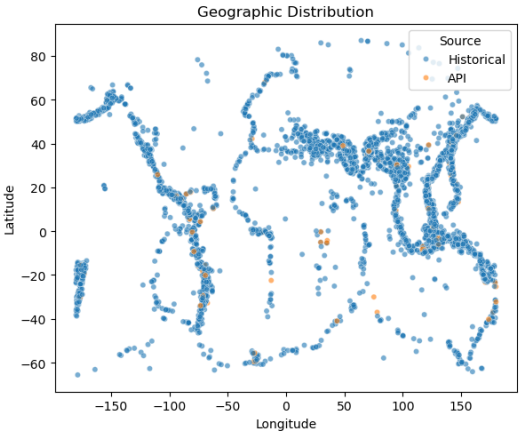


Output 13

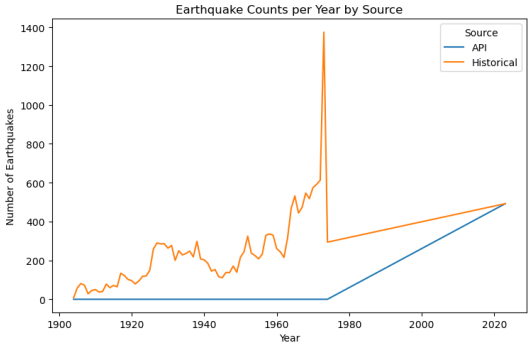


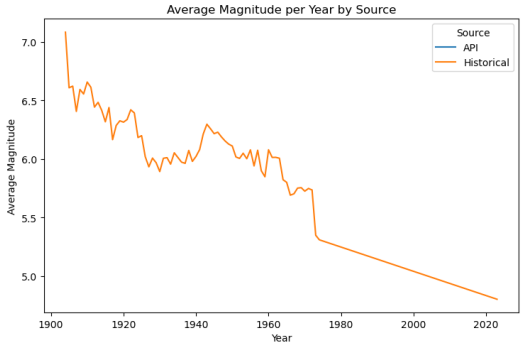


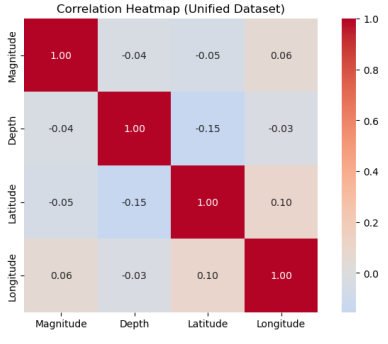


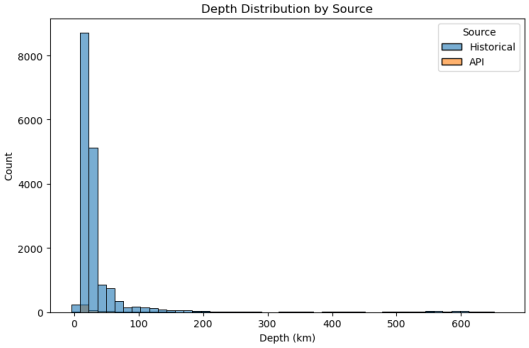


Output 14

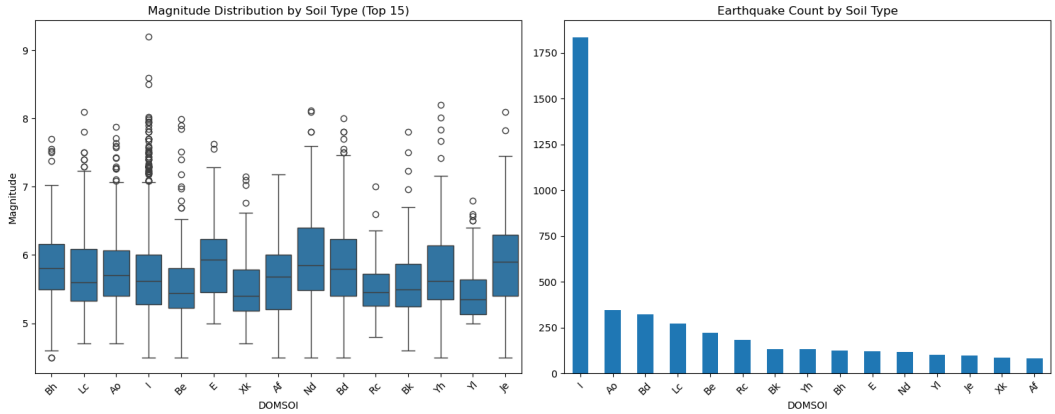




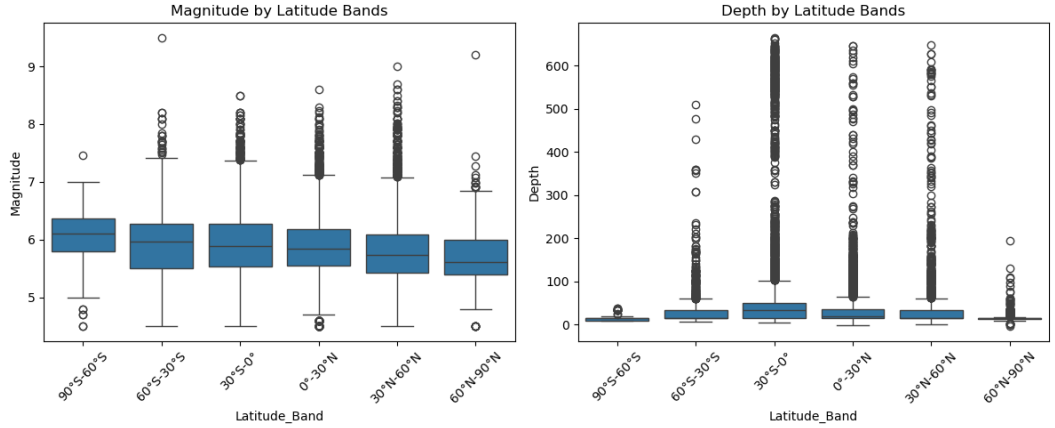




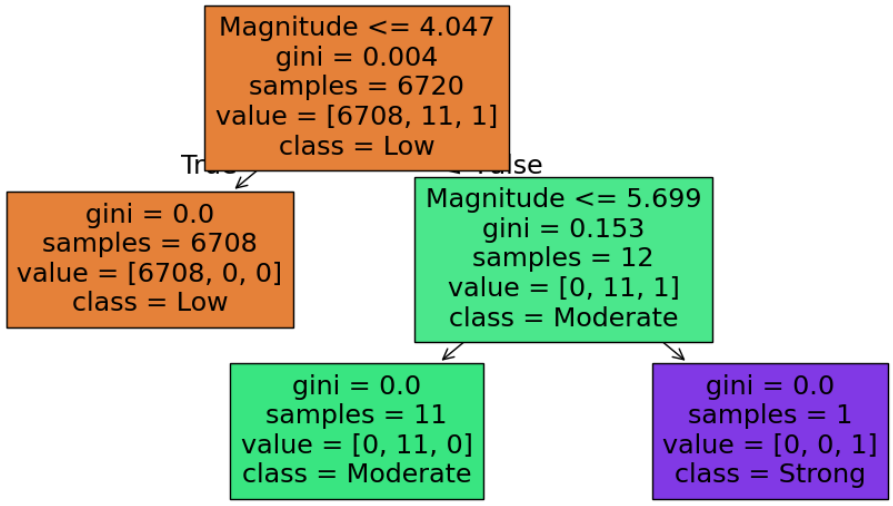
Output 15



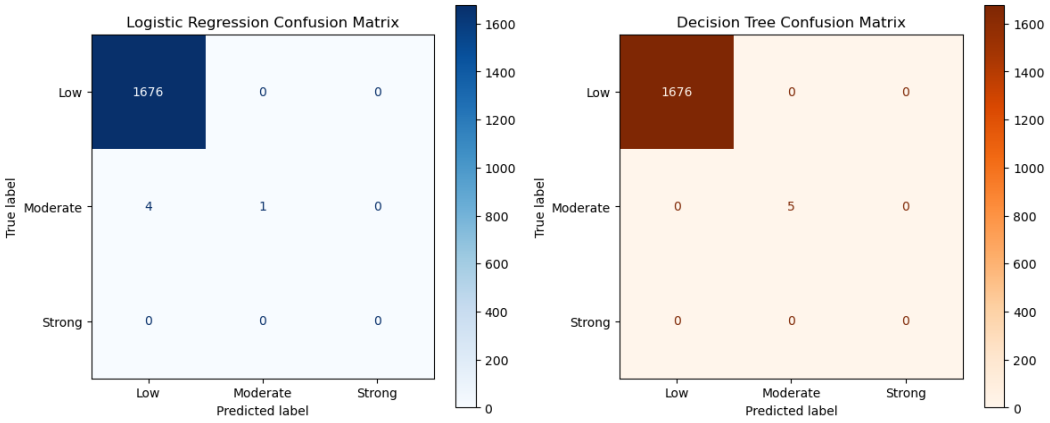
Output 16



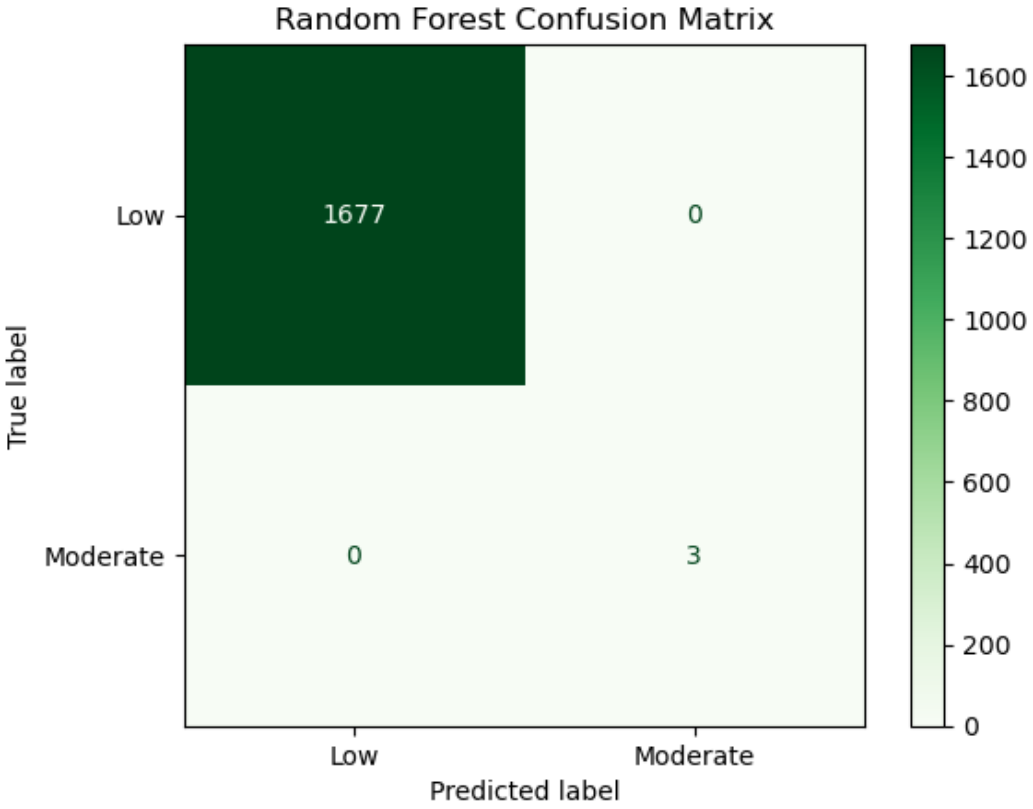
Output 17



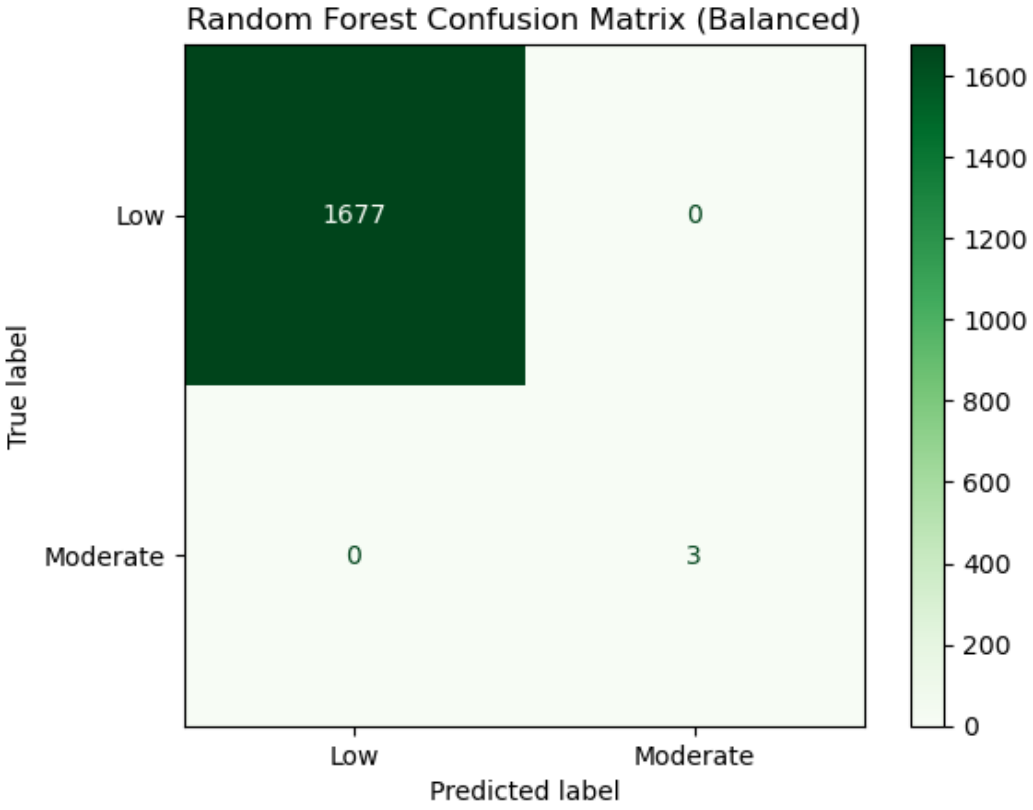
Output 18



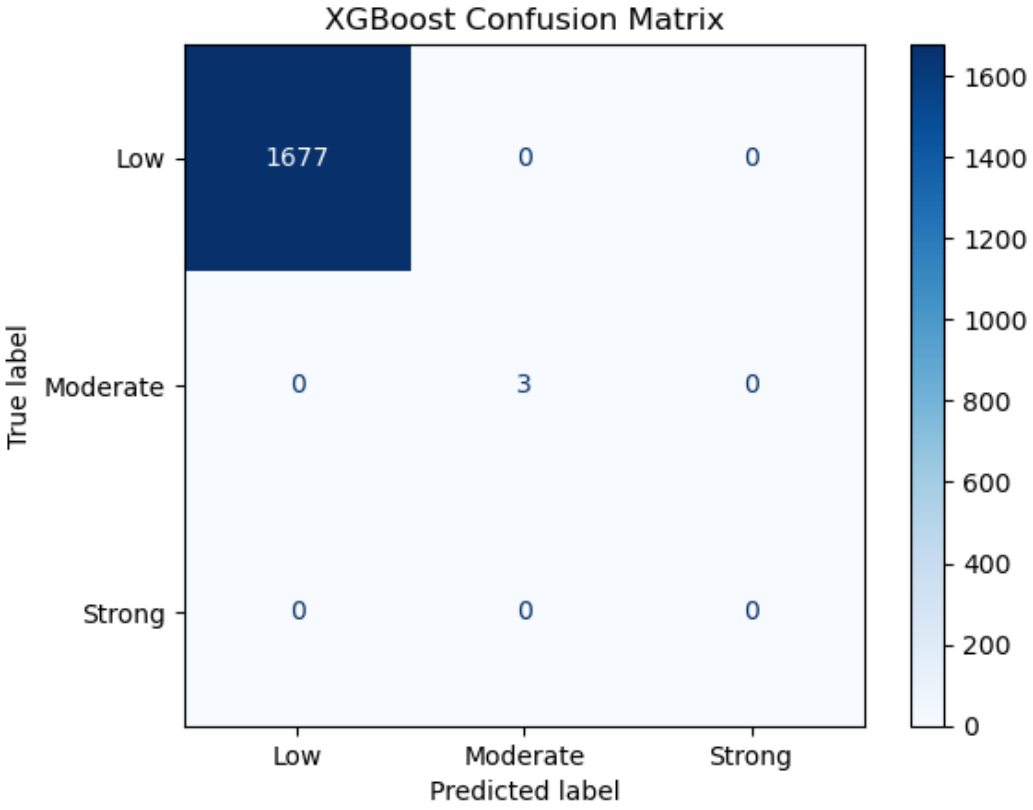
Output 19



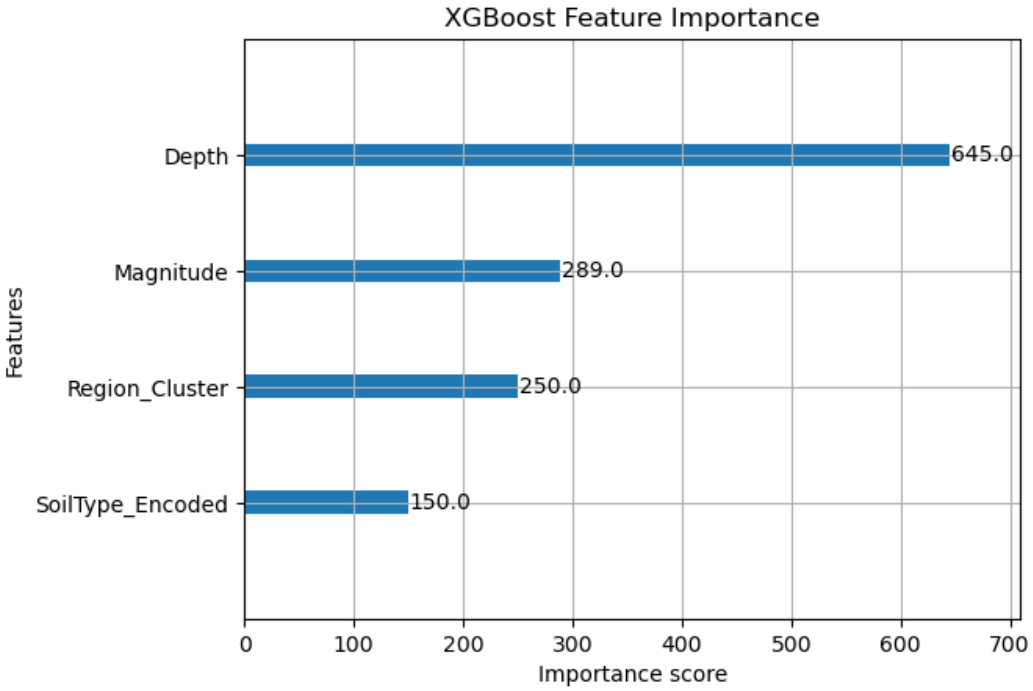
Output 20


Random Forest Confusion Matrix (Balanced)
Low
Moderate
True label
1677
0
0
3
Low
Moderate
Predicted label
1600
1400
1200
1000
800
600
400
200
0

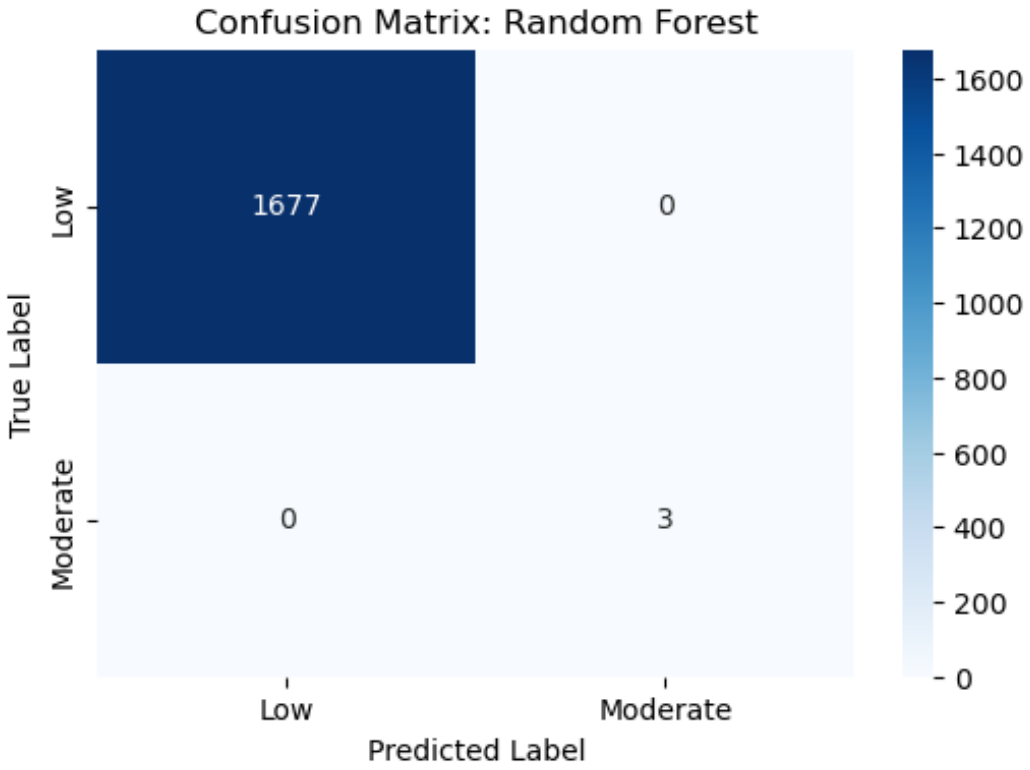
Output 21



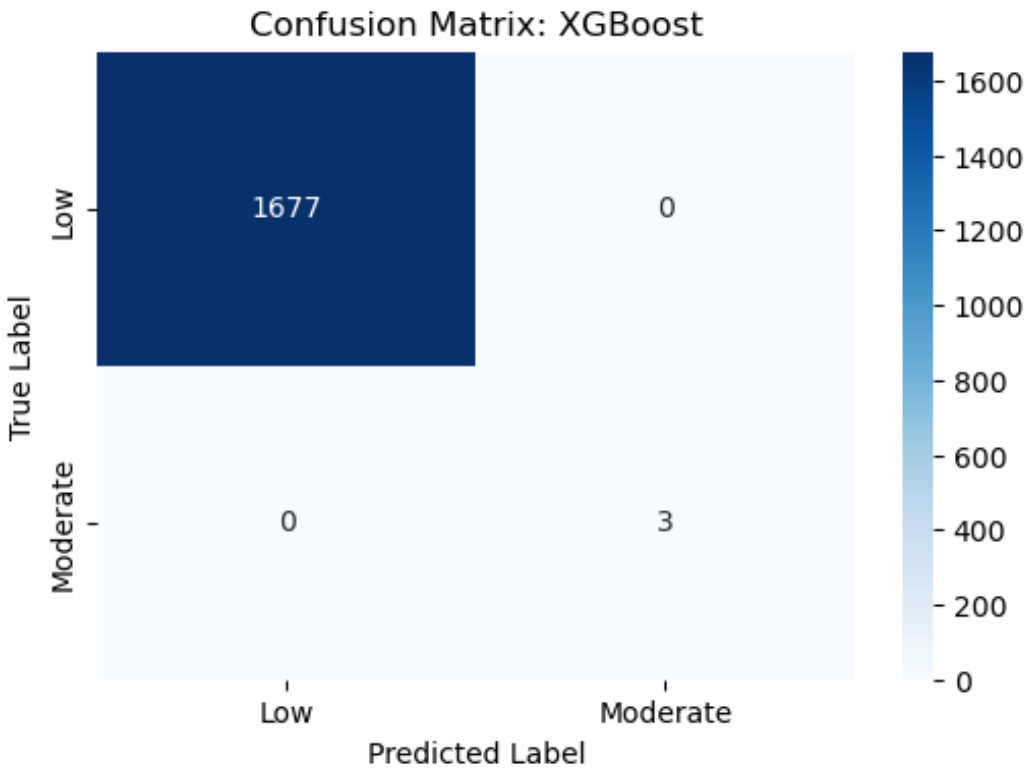
Output 22



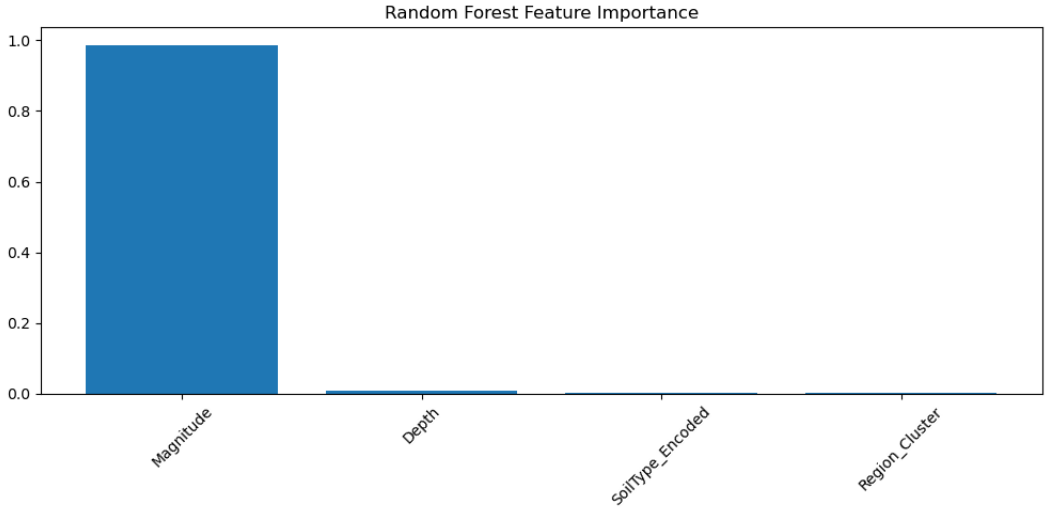
Output 23



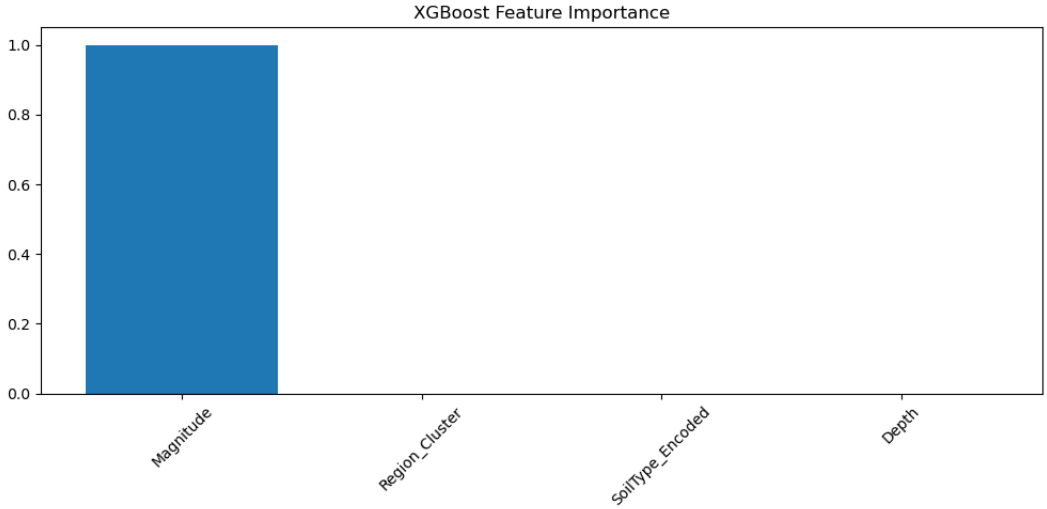
Output 24



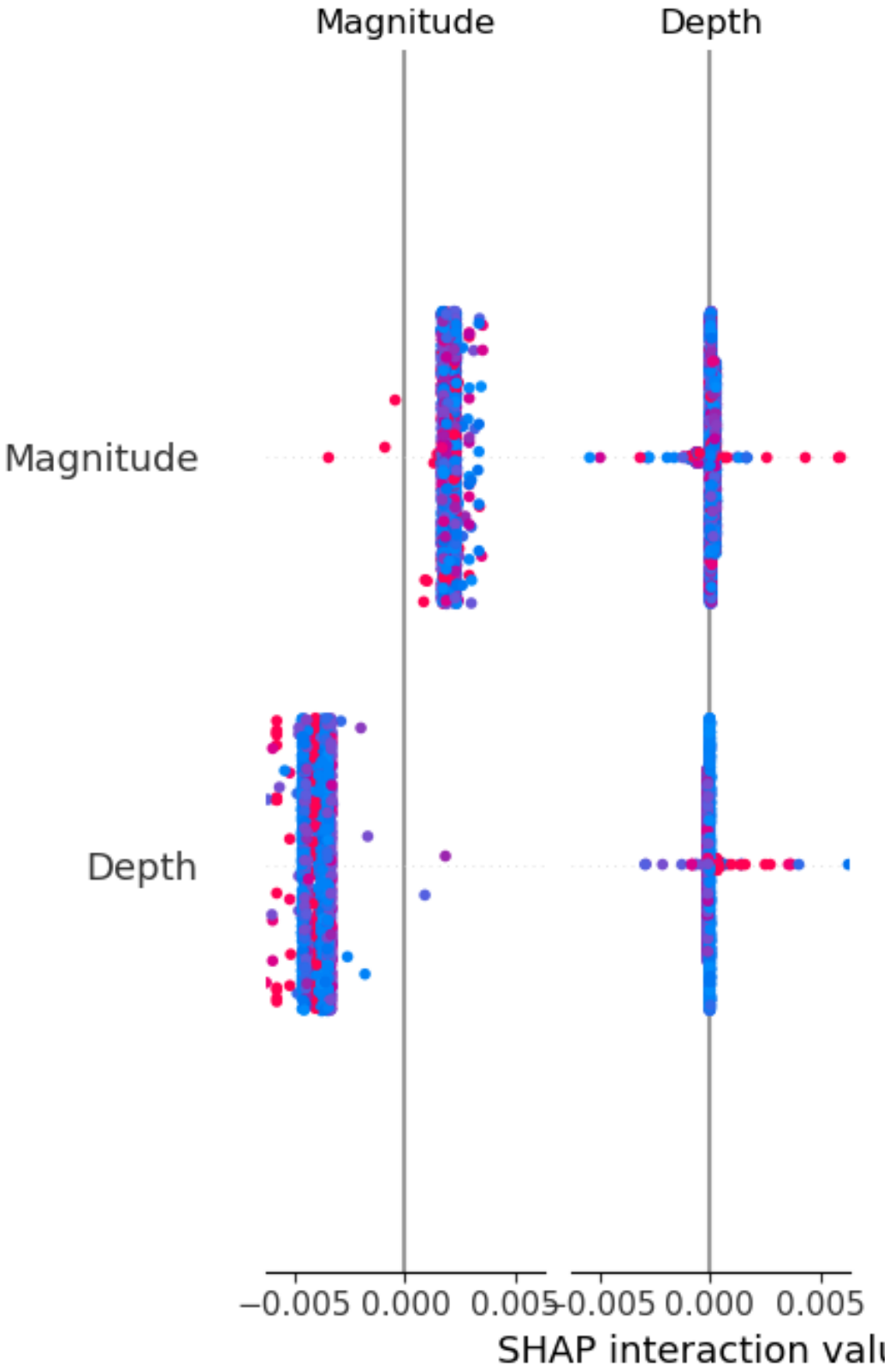
Output 25



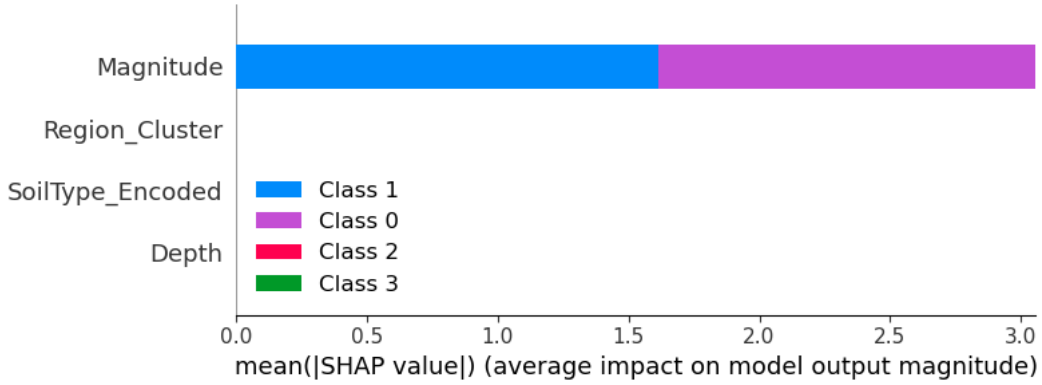
Output 26



Output 27


Magnitude
Depth
Magnitude
Depth
−0.005 0.000 0.005
−0.005 0.000 0.005
SHAP interaction valu

Output 28



Gradio UI output

Earthquake Damage Prediction App

Interactive prediction results based on ML model

Input Parameters

Magnitude:	**5.8**
Depth (km):	**12**
Soil Type (Encoded):	**2**
Region Cluster:	**3**

Predict

Outputs

Predicted Damage Level: Moderate Damage

Low	Moderate	High
15%	65%	20%