

Python 3.11.5 (main, Sep 11 2023, 08:17:37) [Clang 14.0.6 ]  
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IPython 8.20.0 -- An enhanced Interactive Python.

Populating the interactive namespace from numpy and matplotlib

These commands were executed:

```
>>> from sympy import *  
>>> x, y, z, t = symbols('x y z t')  
>>> k, m, n = symbols('k m n', integer=True)  
>>> f, g, h = symbols('f g h', cls=Function)
```

Warning: pylab (numpy and matplotlib) and symbolic math (sympy) are both enabled at the same time. Some pylab functions are going to be overridden by the sympy module (e.g. plot)

```
In [1]:      '/Users/christian_elynnnguyen/Christian\'s Python  
Learning Journey/CMS_data_extraction_test-1.py'      = '/Users/  
christian_elynnnguyen/Christian\'s Python Learning Journey'  
294  
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```

G45.0 Vertebro-basilar artery syndrome  
G45.1 Carotid artery syndrome (hemispheric)  
G45.2 Multiple and bilateral precerebral artery syndromes  
G45.3 Amaurosis fugax  
G45.4 Transient global amnesia  
G45.8 Other transient cerebral ischemic attacks and related syndromes  
G45.9 Transient cerebral ischemic attack, unspecified  
G46.0 Middle cerebral artery syndrome  
G46.1 Anterior cerebral artery syndrome  
G46.2 Posterior cerebral artery syndrome  
G46.3 Brain stem stroke syndrome  
G46.4 Cerebellar stroke syndrome  
G46.5 Pure motor lacunar syndrome  
G46.6 Pure sensory lacunar syndrome  
G46.7 Other lacunar syndromes  
G46.8 Other vascular syndromes of brain in cerebrovascular diseases  
G81.01 Flaccid hemiplegia affecting right dominant side  
G81.02 Flaccid hemiplegia affecting left dominant side  
G81.03 Flaccid hemiplegia affecting right nondominant side  
G81.04 Flaccid hemiplegia affecting left nondominant side  
G81.11 Spastic hemiplegia affecting right dominant side  
G81.12 Spastic hemiplegia affecting left dominant side  
G81.13 Spastic hemiplegia affecting right nondominant side  
G81.14 Spastic hemiplegia affecting left nondominant side  
G81.91 Hemiplegia, unspecified affecting right dominant side

G81.92 Hemiplegia, unspecified affecting left dominant side  
 G81.93 Hemiplegia, unspecified affecting right nondominant side  
 G81.94 Hemiplegia, unspecified affecting left nondominant side  
 G83.0 Diplegia of upper limbs  
 G83.11 Monoplegia of lower limb affecting right dominant side  
 G83.12 Monoplegia of lower limb affecting left dominant side  
 G83.13 Monoplegia of lower limb affecting right nondominant side  
 G83.14 Monoplegia of lower limb affecting left nondominant side  
 G83.21 Monoplegia of upper limb affecting right dominant side  
 G83.22 Monoplegia of upper limb affecting left dominant side  
 G83.23 Monoplegia of upper limb affecting right nondominant side  
 G83.24 Monoplegia of upper limb affecting left nondominant side  
 G83.31 Monoplegia, unspecified affecting right dominant side  
 G83.32 Monoplegia, unspecified affecting left dominant side  
 G83.33 Monoplegia, unspecified affecting right nondominant side  
 G83.34 Monoplegia, unspecified affecting left nondominant side  
 H34.01 Transient retinal artery occlusion, right eye  
 H34.02 Transient retinal artery occlusion, left eye  
 H34.03 Transient retinal artery occlusion, bilateral  
 H34.11 Central retinal artery occlusion, right eye  
 H34.12 Central retinal artery occlusion, left eye  
 H34.13 Central retinal artery occlusion, bilateral  
 H34.211 Partial retinal artery occlusion, right eye  
 H34.212 Partial retinal artery occlusion, left eye  
 H34.213 Partial retinal artery occlusion, bilateral  
 H34.231 Retinal artery branch occlusion, right eye  
 H34.232 Retinal artery branch occlusion, left eye  
 H34.233 Retinal artery branch occlusion, bilateral  
 H35.82 Retinal ischemia  
 H53.11 Day blindness  
 H53.121 Transient visual loss, right eye  
 H53.122 Transient visual loss, left eye  
 H53.123 Transient visual loss, bilateral  
 H53.131 Sudden visual loss, right eye  
 H53.132 Sudden visual loss, left eye  
 H53.133 Sudden visual loss, bilateral  
 I25.10 Atherosclerotic heart disease of native coronary artery without angina pectoris  
 I25.110 Atherosclerotic heart disease of native coronary artery with unstable angina pectoris  
 I25.111 Atherosclerotic heart disease of native coronary artery with angina pectoris with documented spasm  
 I25.118 Atherosclerotic heart disease of native coronary artery with other forms of angina pectoris  
 I25.119 Atherosclerotic heart disease of native coronary artery with unspecified angina pectoris  
 I34.0 Nonrheumatic mitral (valve) insufficiency  
 I34.1 Nonrheumatic mitral (valve) prolapse  
 I34.2 Nonrheumatic mitral (valve) stenosis  
 I35.0 Nonrheumatic aortic (valve) stenosis

I35.1 Nonrheumatic aortic (valve) insufficiency  
I35.2 Nonrheumatic aortic (valve) stenosis with insufficiency  
I61.0 Nontraumatic intracerebral hemorrhage in hemisphere, subcortical  
I61.1 Nontraumatic intracerebral hemorrhage in hemisphere, cortical  
I61.2 Nontraumatic intracerebral hemorrhage in hemisphere, unspecified  
I61.3 Nontraumatic intracerebral hemorrhage in brain stem  
I61.4 Nontraumatic intracerebral hemorrhage in cerebellum  
I61.5 Nontraumatic intracerebral hemorrhage, intraventricular  
I61.6 Nontraumatic intracerebral hemorrhage, multiple localized  
I61.8 Other nontraumatic intracerebral hemorrhage  
I61.9 Nontraumatic intracerebral hemorrhage, unspecified  
I63.00 Cerebral infarction due to thrombosis of unspecified precerebral artery  
I63.011 Cerebral infarction due to thrombosis of right vertebral artery  
I63.012 Cerebral infarction due to thrombosis of left vertebral artery  
I63.013 Cerebral infarction due to thrombosis of bilateral vertebral arteries  
I63.02 Cerebral infarction due to thrombosis of basilar artery  
I63.031 Cerebral infarction due to thrombosis of right carotid artery  
I63.032 Cerebral infarction due to thrombosis of left carotid artery  
I63.033 Cerebral infarction due to thrombosis of bilateral carotid arteries  
I63.09 Cerebral infarction due to thrombosis of other precerebral artery  
I63.10 Cerebral infarction due to embolism of unspecified precerebral artery  
I63.111 Cerebral infarction due to embolism of right vertebral artery  
I63.112 Cerebral infarction due to embolism of left vertebral artery  
I63.113 Cerebral infarction due to embolism of bilateral vertebral arteries  
I63.12 Cerebral infarction due to embolism of basilar artery  
I63.131 Cerebral infarction due to embolism of right carotid artery  
I63.132 Cerebral infarction due to embolism of left carotid artery  
I63.133 Cerebral infarction due to embolism of bilateral carotid arteries  
I63.19 Cerebral infarction due to embolism of other precerebral artery  
I63.20 Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries  
I63.211 Cerebral infarction due to unspecified occlusion or stenosis of right vertebral artery  
I63.212 Cerebral infarction due to unspecified occlusion or stenosis of left vertebral artery  
I63.213 Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries  
I63.219 Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral artery  
I63.22 Cerebral infarction due to unspecified occlusion or stenosis of basilar artery  
I63.231 Cerebral infarction due to unspecified occlusion or stenosis of right carotid arteries  
I63.232 Cerebral infarction due to unspecified occlusion or stenosis of

left carotid arteries

I63.233 Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries

I63.29 Cerebral infarction due to unspecified occlusion or stenosis of other precerebral arteries

I63.311 Cerebral infarction due to thrombosis of right middle cerebral artery

I63.312 Cerebral infarction due to thrombosis of left middle cerebral artery

I63.313 Cerebral infarction due to thrombosis of bilateral middle cerebral arteries

I63.321 Cerebral infarction due to thrombosis of right anterior cerebral artery

I63.322 Cerebral infarction due to thrombosis of left anterior cerebral artery

I63.323 Cerebral infarction due to thrombosis of bilateral anterior cerebral arteries

I63.331 Cerebral infarction due to thrombosis of right posterior cerebral artery

I63.332 Cerebral infarction due to thrombosis of left posterior cerebral artery

I63.333 Cerebral infarction due to thrombosis of bilateral posterior cerebral arteries

I63.341 Cerebral infarction due to thrombosis of right cerebellar artery

I63.342 Cerebral infarction due to thrombosis of left cerebellar artery

I63.343 Cerebral infarction due to thrombosis of bilateral cerebellar arteries

I63.39 Cerebral infarction due to thrombosis of other cerebral artery

I63.411 Cerebral infarction due to embolism of right middle cerebral artery

I63.412 Cerebral infarction due to embolism of left middle cerebral artery

I63.413 Cerebral infarction due to embolism of bilateral middle cerebral arteries

I63.421 Cerebral infarction due to embolism of right anterior cerebral artery

I63.422 Cerebral infarction due to embolism of left anterior cerebral artery

I63.423 Cerebral infarction due to embolism of bilateral anterior cerebral arteries

I63.431 Cerebral infarction due to embolism of right posterior cerebral artery

I63.432 Cerebral infarction due to embolism of left posterior cerebral artery

I63.433 Cerebral infarction due to embolism of bilateral posterior cerebral arteries

I63.441 Cerebral infarction due to embolism of right cerebellar artery

I63.442 Cerebral infarction due to embolism of left cerebellar artery

I63.443 Cerebral infarction due to embolism of bilateral cerebellar arteries

I63.49 Cerebral infarction due to embolism of other cerebral artery  
I63.511 Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery  
I63.512 Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery  
I63.513 Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle cerebral arteries  
I63.521 Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral artery  
I63.522 Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral artery  
I63.523 Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior cerebral arteries  
I63.531 Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery  
I63.532 Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery  
I63.533 Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior cerebral arteries  
I63.541 Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery  
I63.542 Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery  
I63.543 Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries  
I63.59 Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery  
I63.6 Cerebral infarction due to cerebral venous thrombosis, nonpyogenic  
I63.81 Other cerebral infarction due to occlusion or stenosis of small artery  
I63.89 Other cerebral infarction  
I65.01 Occlusion and stenosis of right vertebral artery  
I65.02 Occlusion and stenosis of left vertebral artery  
I65.03 Occlusion and stenosis of bilateral vertebral arteries  
I65.1 Occlusion and stenosis of basilar artery  
I65.21 Occlusion and stenosis of right carotid artery  
I65.22 Occlusion and stenosis of left carotid artery  
I65.23 Occlusion and stenosis of bilateral carotid arteries  
I65.8 Occlusion and stenosis of other precerebral arteries  
I66.01 Occlusion and stenosis of right middle cerebral artery  
I66.02 Occlusion and stenosis of left middle cerebral artery  
I66.03 Occlusion and stenosis of bilateral middle cerebral arteries  
I66.11 Occlusion and stenosis of right anterior cerebral artery  
I66.12 Occlusion and stenosis of left anterior cerebral artery  
I66.13 Occlusion and stenosis of bilateral anterior cerebral arteries  
I66.21 Occlusion and stenosis of right posterior cerebral artery  
I66.22 Occlusion and stenosis of left posterior cerebral artery  
I66.23 Occlusion and stenosis of bilateral posterior cerebral arteries  
I66.3 Occlusion and stenosis of cerebellar arteries  
I66.8 Occlusion and stenosis of other cerebral arteries

I67.1 Cerebral aneurysm, nonruptured  
I67.2 Cerebral atherosclerosis  
I67.6 Nonpyogenic thrombosis of intracranial venous system  
I67.81 Acute cerebrovascular insufficiency  
I67.82 Cerebral ischemia  
I67.841 Reversible cerebrovascular vasoconstriction syndrome  
I67.848 Other cerebrovascular vasospasm and vasoconstriction  
I67.89 Other cerebrovascular disease  
I68.0 Cerebral amyloid angiopathy  
I69.031 Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting right dominant side  
I69.032 Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting left dominant side  
I69.033 Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting right non-dominant side  
I69.034 Monoplegia of upper limb following nontraumatic subarachnoid hemorrhage affecting left non-dominant side  
I69.041 Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting right dominant side  
I69.042 Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting left dominant side  
I69.043 Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting right non-dominant side  
I69.044 Monoplegia of lower limb following nontraumatic subarachnoid hemorrhage affecting left non-dominant side  
I69.051 Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting right dominant side  
I69.052 Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting left dominant side  
I69.053 Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting right non-dominant side  
I69.054 Hemiplegia and hemiparesis following nontraumatic subarachnoid hemorrhage affecting left non-dominant side  
I69.131 Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting right dominant side  
I69.132 Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting left dominant side  
I69.133 Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting right non-dominant side  
I69.134 Monoplegia of upper limb following nontraumatic intracerebral hemorrhage affecting left non-dominant side  
I69.141 Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting right dominant side  
I69.142 Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting left dominant side  
I69.143 Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting right non-dominant side  
I69.144 Monoplegia of lower limb following nontraumatic intracerebral hemorrhage affecting left non-dominant side  
I69.151 Hemiplegia and hemiparesis following nontraumatic intracerebral

hemorrhage affecting right dominant side  
I69.152 Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting left dominant side  
I69.153 Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting right non-dominant side  
I69.154 Hemiplegia and hemiparesis following nontraumatic intracerebral hemorrhage affecting left non-dominant side  
I69.231 Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting right dominant side  
I69.232 Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting left dominant side  
I69.233 Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting right non-dominant side  
I69.234 Monoplegia of upper limb following other nontraumatic intracranial hemorrhage affecting left non-dominant side  
I69.241 Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting right dominant side  
I69.242 Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting left dominant side  
I69.243 Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting right non-dominant side  
I69.244 Monoplegia of lower limb following other nontraumatic intracranial hemorrhage affecting left non-dominant side  
I69.251 Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting right dominant side  
I69.252 Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting left dominant side  
I69.253 Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting right non-dominant side  
I69.254 Hemiplegia and hemiparesis following other nontraumatic intracranial hemorrhage affecting left non-dominant side  
I69.331 Monoplegia of upper limb following cerebral infarction affecting right dominant side  
I69.332 Monoplegia of upper limb following cerebral infarction affecting left dominant side  
I69.333 Monoplegia of upper limb following cerebral infarction affecting right non-dominant side  
I69.334 Monoplegia of upper limb following cerebral infarction affecting left non-dominant side  
I69.341 Monoplegia of lower limb following cerebral infarction affecting right dominant side  
I69.342 Monoplegia of lower limb following cerebral infarction affecting left dominant side  
I69.343 Monoplegia of lower limb following cerebral infarction affecting right non-dominant side  
I69.344 Monoplegia of lower limb following cerebral infarction affecting left non-dominant side  
I69.351 Hemiplegia and hemiparesis following cerebral infarction affecting right dominant side  
I69.352 Hemiplegia and hemiparesis following cerebral infarction

affecting left dominant side  
I69.353 Hemiplegia and hemiparesis following cerebral infarction  
affecting right non-dominant side  
I69.354 Hemiplegia and hemiparesis following cerebral infarction  
affecting left non-dominant side  
I69.831 Monoplegia of upper limb following other cerebrovascular disease  
affecting right dominant side  
I69.832 Monoplegia of upper limb following other cerebrovascular disease  
affecting left dominant side  
I69.833 Monoplegia of upper limb following other cerebrovascular disease  
affecting right non-dominant side  
I69.834 Monoplegia of upper limb following other cerebrovascular disease  
affecting left non-dominant side  
I69.841 Monoplegia of lower limb following other cerebrovascular disease  
affecting right dominant side  
I69.842 Monoplegia of lower limb following other cerebrovascular disease  
affecting left dominant side  
I69.843 Monoplegia of lower limb following other cerebrovascular disease  
affecting right non-dominant side  
I69.844 Monoplegia of lower limb following other cerebrovascular disease  
affecting left non-dominant side  
I69.851 Hemiplegia and hemiparesis following other cerebrovascular  
disease affecting right dominant side  
I69.852 Hemiplegia and hemiparesis following other cerebrovascular  
disease affecting left dominant side  
I69.853 Hemiplegia and hemiparesis following other cerebrovascular  
disease affecting right non-dominant side  
I69.854 Hemiplegia and hemiparesis following other cerebrovascular  
disease affecting left non-dominant side  
I69.931 Monoplegia of upper limb following unspecified cerebrovascular  
disease affecting right dominant side  
I69.932 Monoplegia of upper limb following unspecified cerebrovascular  
disease affecting left dominant side  
I69.933 Monoplegia of upper limb following unspecified cerebrovascular  
disease affecting right non-dominant side  
I69.934 Monoplegia of upper limb following unspecified cerebrovascular  
disease affecting left non-dominant side  
I69.941 Monoplegia of lower limb following unspecified cerebrovascular  
disease affecting right dominant side  
I69.942 Monoplegia of lower limb following unspecified cerebrovascular  
disease affecting left dominant side  
I69.943 Monoplegia of lower limb following unspecified cerebrovascular  
disease affecting right non-dominant side  
I69.944 Monoplegia of lower limb following unspecified cerebrovascular  
disease affecting left non-dominant side  
I69.951 Hemiplegia and hemiparesis following unspecified cerebrovascular  
disease affecting right dominant side  
I69.952 Hemiplegia and hemiparesis following unspecified cerebrovascular  
disease affecting left dominant side  
I69.953 Hemiplegia and hemiparesis following unspecified cerebrovascular



disease affecting right non-dominant side  
I69.954 Hemiplegia and hemiparesis following unspecified cerebrovascular disease affecting left non-dominant side  
I72.0 Aneurysm of carotid artery  
I74.9 Embolism and thrombosis of unspecified artery  
I76 Septic arterial embolism  
I77.1 Stricture of artery  
I77.2 Rupture of artery  
I77.3 Arterial fibromuscular dysplasia  
I77.6 Arteritis, unspecified  
I77.71 Dissection of carotid artery  
I77.89 Other specified disorders of arteries and arterioles  
R09.89 Other specified symptoms and signs involving the circulatory and respiratory systems  
R22.1 Localized swelling, mass and lump, neck  
R26.0 Ataxic gait  
R26.1 Paralytic gait  
R29.5 Transient paralysis  
R29.810 Facial weakness  
R47.01 Aphasia  
R47.02 Dysphasia  
R47.1 Dysarthria and anarthria  
R47.81 Slurred speech  
R47.89 Other speech disturbances  
R55 Syncope and collapse  
S15.011A – S15.011S Minor laceration of right carotid artery, initial encounter – Minor laceration of right carotid artery, sequela  
S15.012A – S15.012S Minor laceration of left carotid artery, initial encounter – Minor laceration of left carotid artery, sequela  
S15.021A – S15.021S Major laceration of right carotid artery, initial encounter – Major laceration of right carotid artery, sequela  
S15.022A – S15.022S Major laceration of left carotid artery, initial encounter – Major laceration of left carotid artery, sequela  
S15.091A – S15.091S Other specified injury of right carotid artery, initial encounter – Other specified injury of right carotid artery, sequela  
S15.092A – S15.092S Other specified injury of left carotid artery, initial encounter – Other specified injury of left carotid artery, sequela  
S15.111A – S15.111S Minor laceration of right vertebral artery, initial encounter – Minor laceration of right vertebral artery, sequela  
S15.112A – S15.112S Minor laceration of left vertebral artery, initial encounter – Minor laceration of left vertebral artery, sequela  
S15.121A – S15.121S Major laceration of right vertebral artery, initial encounter – Major laceration of right vertebral artery, sequela  
S15.122A – S15.122S Major laceration of left vertebral artery, initial encounter – Major laceration of left vertebral artery, sequela  
S15.191A – S15.191S Other specified injury of right vertebral artery, initial encounter – Other specified injury of right vertebral artery, sequela

S15.192A – S15.192S Other specified injury of left vertebral artery, initial encounter – Other specified injury of left vertebral artery, sequela  
S25.111A – S25.111S Minor laceration of right innominate or subclavian artery, initial encounter – Minor laceration of right innominate or subclavian artery, sequela  
S25.112A – S25.112S Minor laceration of left innominate or subclavian artery, initial encounter – Minor laceration of left innominate or subclavian artery, sequela  
S25.121A – S25.121S Major laceration of right innominate or subclavian artery, initial encounter – Major laceration of right innominate or subclavian artery, sequela  
S25.122A – S25.122S Major laceration of left innominate or subclavian artery, initial encounter – Major laceration of left innominate or subclavian artery, sequela  
S25.191A – S25.191S Other specified injury of right innominate or subclavian artery, initial encounter – Other specified injury of right innominate or subclavian artery, sequela  
S25.192A – S25.192S Other specified injury of left innominate or subclavian artery, initial encounter – Other specified injury of left innominate or subclavian artery, sequela  
Z09 Encounter for follow-up examination after completed treatment for conditions other than malignant neoplasm

In [2]: