

Neuroanatomy Task

Mahmoud Rabea

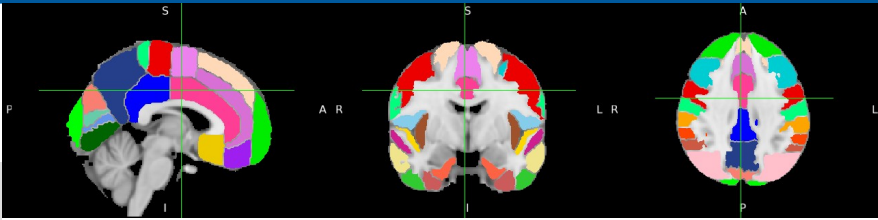
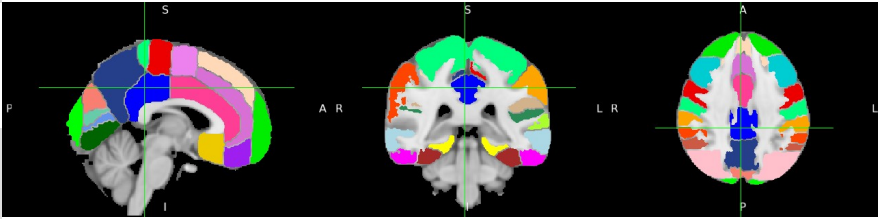
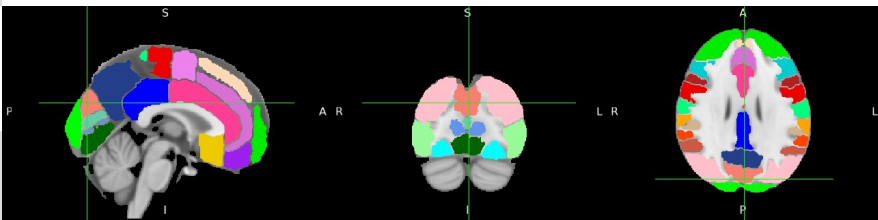
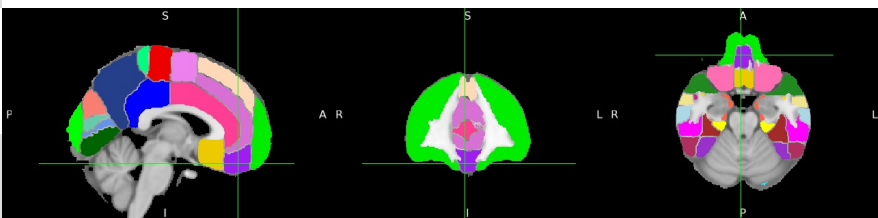
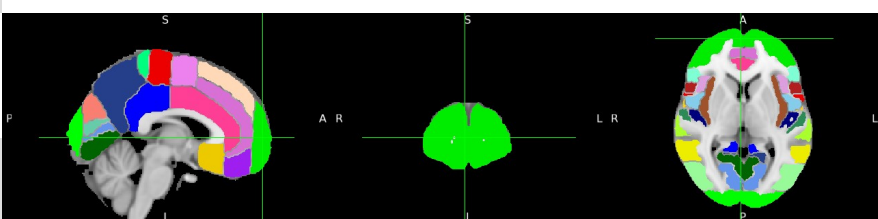
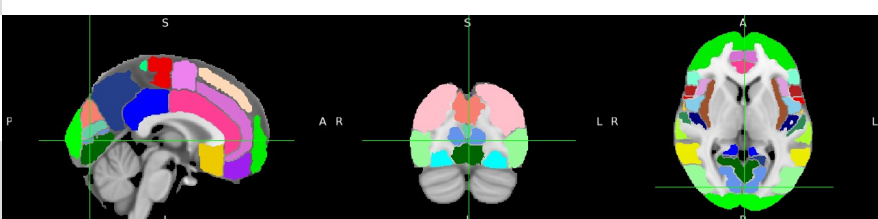
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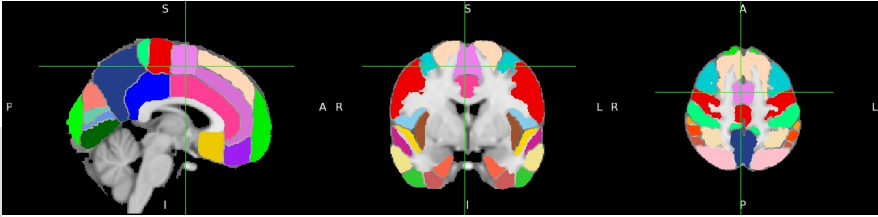
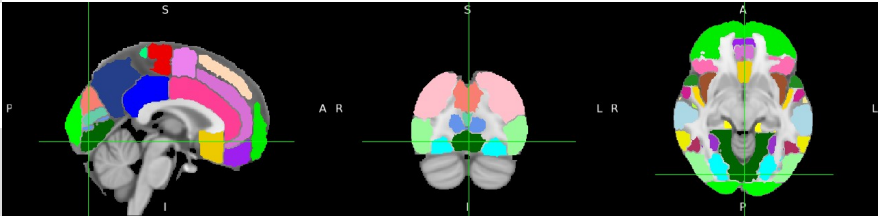
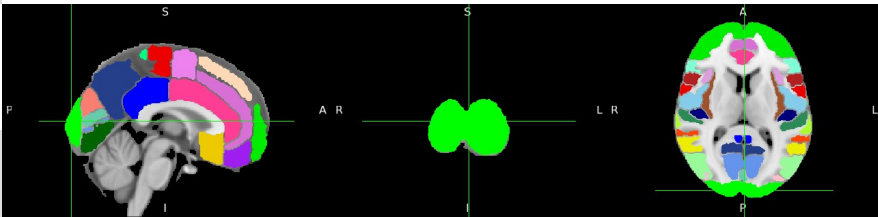
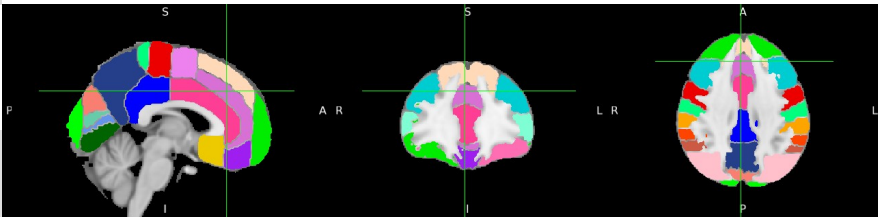
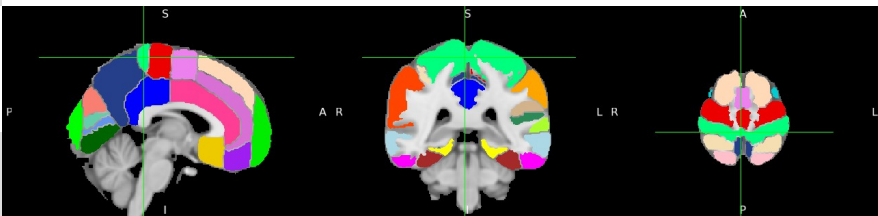
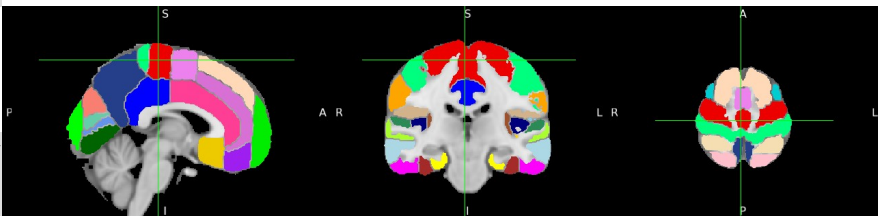
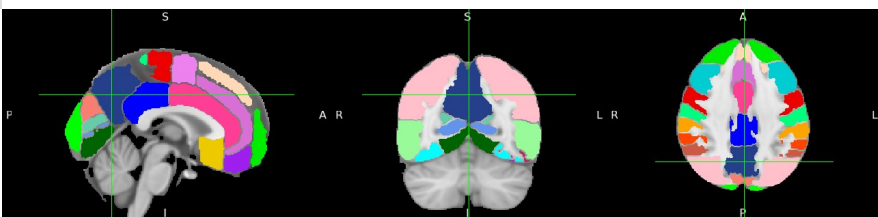
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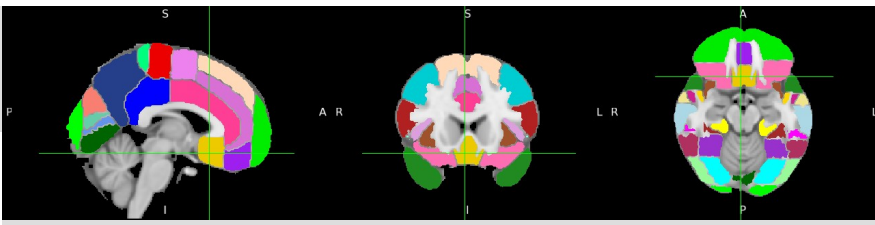
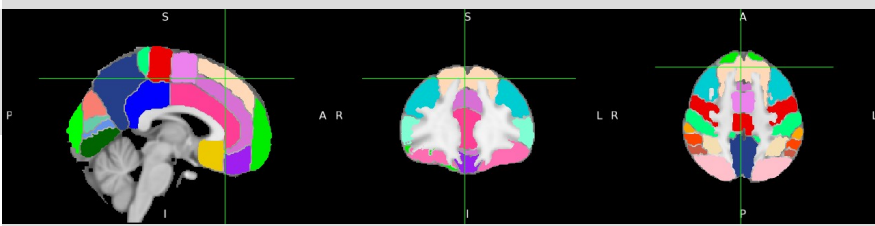
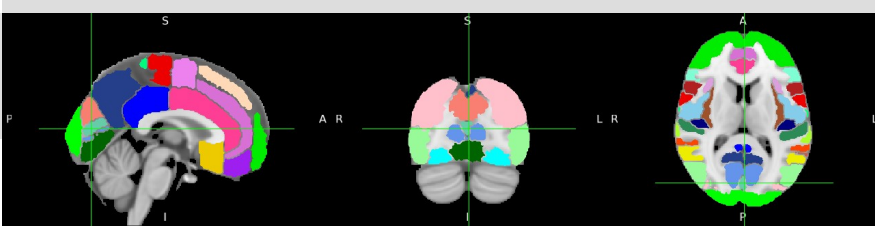
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Harvard-Oxford Cortical Structural Atlas:

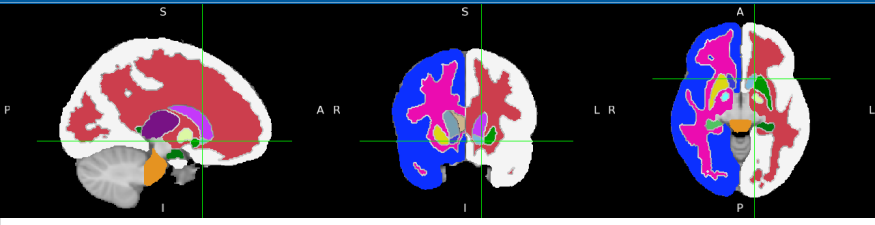
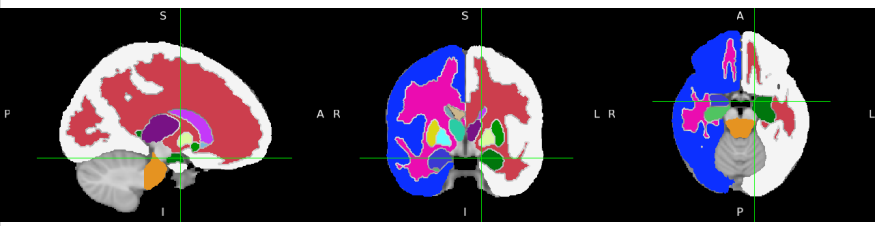
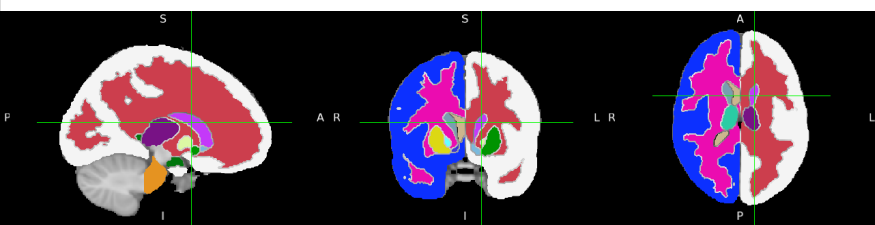
| Region Name | Two main functions | Screenshot |
|-----------------------------------------------------|------------------------|--------------------------------------------------------------------------------------|
| Cingulate Gyrus, anterior division | Emotional Processing |  |
| | Decision Making | |
| Cingulate Gyrus, posterior division | Sensory integration |  |
| | Pain processing | |
| Cuneal Coretex | Visual processing |  |
| | Visuospatial attention | |
| Frontal Medial Cortex | Decision-making |  |
| | Self-awareness | |
| Frontal Pole | Attentional control |  |
| | Decision-making | |
| Intracalcarine Cortex (primary visual cortex or V1) | Visual processing |  |
| | Perception. | |

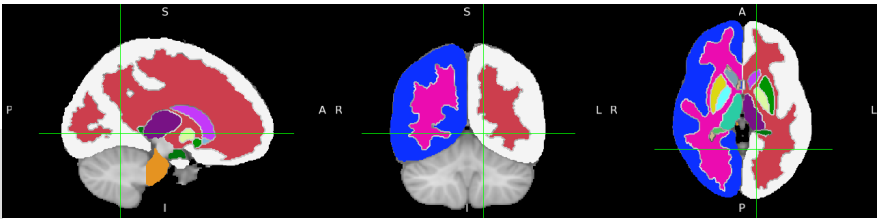
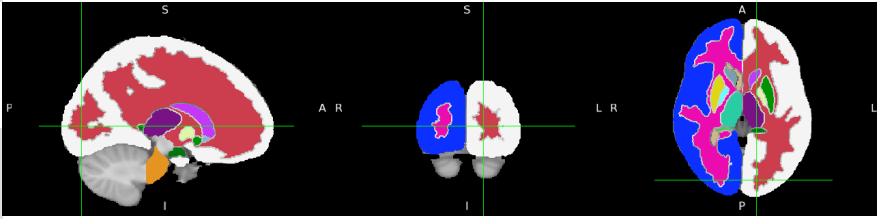
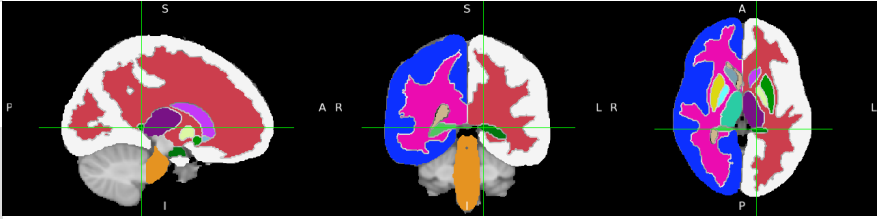
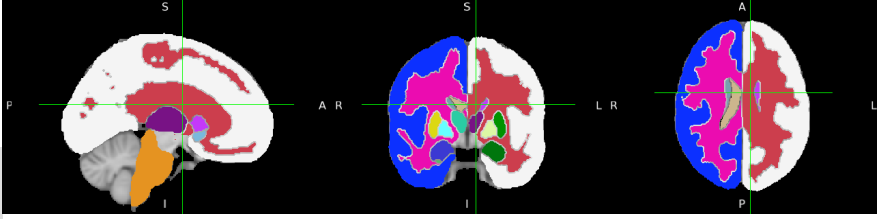
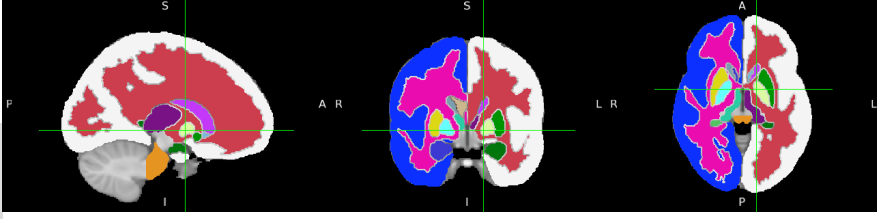
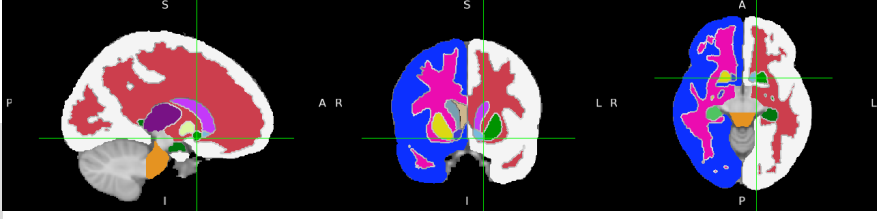
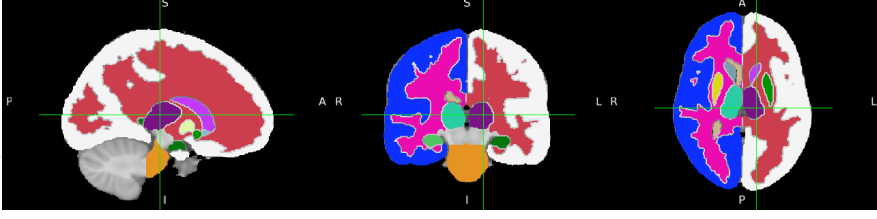
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|------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------------------|
| Juxtapositional Lobule Cortex (formerly Supplementary Motor Cortex) | Motor planning |  |
| | Movement initiation | |
| Lingual Gyrus | Visual processing |  |
| | Object recognition | |
| Occipital pole | Perception |  |
| | Visual processing | |
| Paracingulate Gyrus | Cognitive control |  |
| | Emotional Processing | |
| Postcentral Gyrus (primary somatosensory cortex or S1) | Somatosensory processing |  |
| | Spatial discrimination | |
| Precentral Gyrus (primary motor cortex or M1) | Motor planning |  |
| | Execution of voluntary movements | |
| Precuneous Cortex | Self-processing |  |
| | And Visuospatial processing | |

| | | |
|-------------------------|---------------------------------|------------------------------------------------------------------------------------|
| Subcallosal Cortex | Emotional regulation |  |
| | Reward processing | |
| Superior Frontal Gyrus | Cognitive control |  |
| | Working memory | |
| Supracalcarine Cortex | Visual processing |  |
| | Perception of spatial frequency | |
| Total Number of Regions | | 16 |

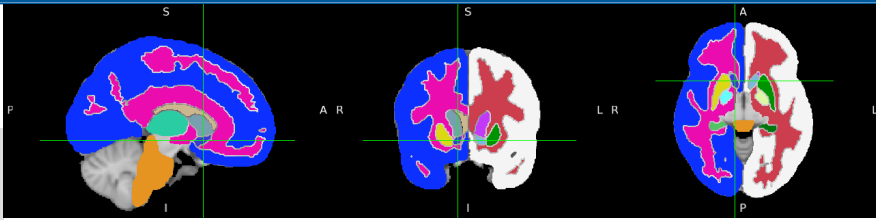
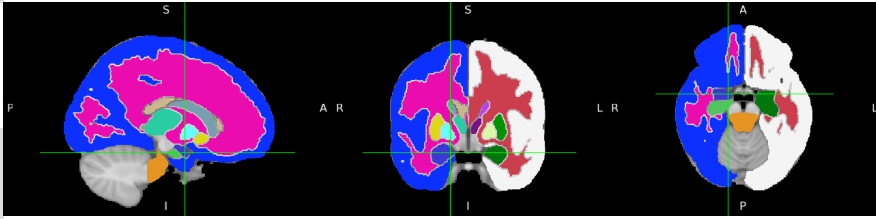
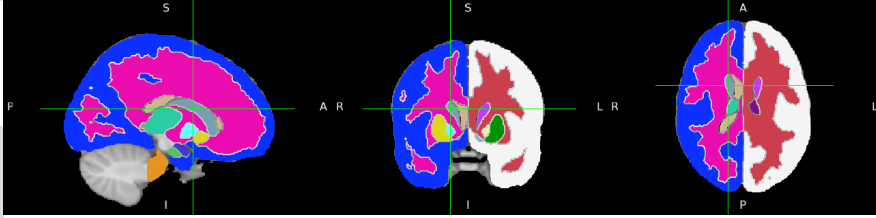
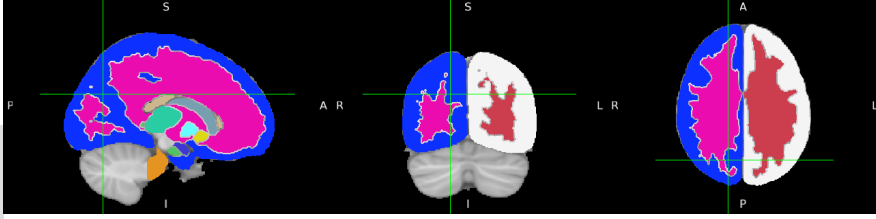
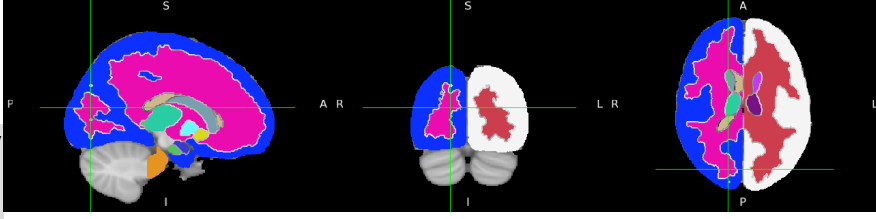
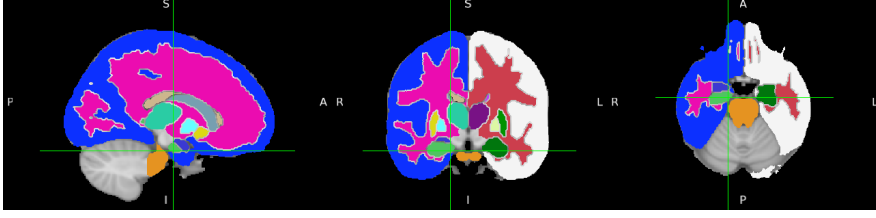
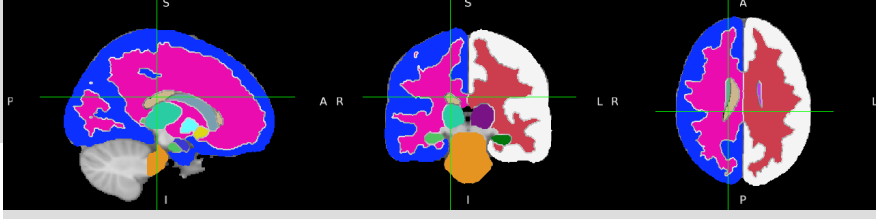
Harvard-Oxford Sub-cortical Structural Atlas:

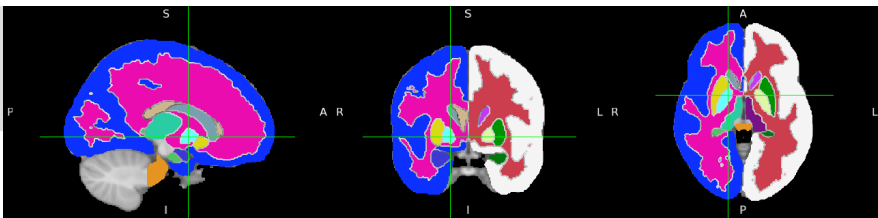
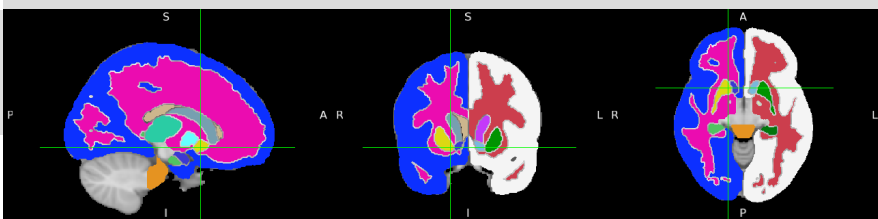
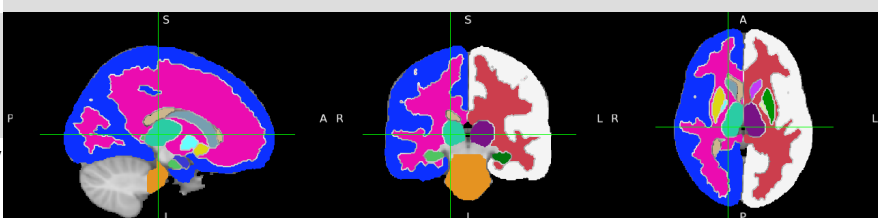
Left:

| Region Name | Two Main Functions | Screenshot |
|------------------------------------|------------------------|--------------------------------------------------------------------------------------|
| Left Accumbens (nucleus accumbens) | Reward processing |  |
| | Motivation | |
| Left Amygdala | Emotional processing |  |
| | Emotional memory | |
| Left Caudate | Motor control |  |
| | Cognitive flexibility. | |

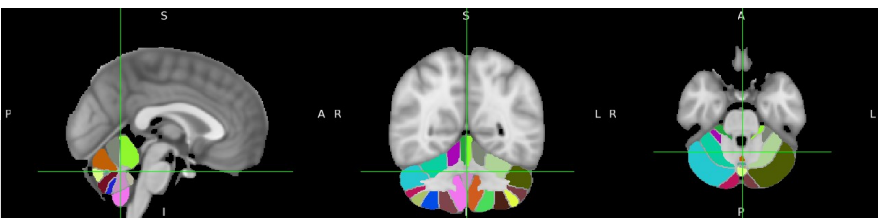
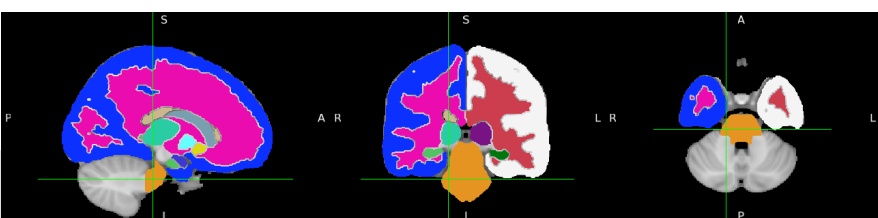
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| Left Cerebral Cortex | Language processing |  |
| | Logical reasoning | |
| Left Cerebral White Matter | Communication between brain regions |  |
| | Processing of language-related information | |
| Left Hippocampus | Spatial navigation |  |
| | Memory consolidation | |
| Left Lateral Ventricle | Production and circulation of cerebrospinal fluid (CSF) |  |
| | Support for brain structure. | |
| Left Pallidum (Globus Pallidus) | Motor control |  |
| | Reward processing | |
| Left Putamen | Motor control |  |
| | Procedural learning. | |
| Left Thalamus | Sensory relay |  |
| | AND Processing of sensory information | |
| Total Number of Regions | | 10 |

Right:

| Region Name | Two Main Functions | Screenshot |
|-------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------|
| Right Accumbens (nucleus accumbens) | Reward processing |  |
| | Motivation | |
| Right Amygdala | Emotional processing |  |
| | Emotional memory | |
| Right Caudate | Motor control |  |
| | Reward-based learning | |
| Right Cerebral Cortex | Spatial processing |  |
| | Creative thinking | |
| Right Cerebral White Matter | Communication between brain regions |  |
| | Processing of sensory information | |
| Right Hippocampus | Spatial navigation |  |
| | AND Memory consolidation | |
| Right Lateral Ventricle | Production and circulation of cerebrospinal fluid (CSF) |  |
| | Support for brain structure. | |

| | | |
|-------------------------------------|---------------------------------------|------------------------------------------------------------------------------------|
| Right Pallidum (Globus Pallidus) | Motor control |  |
| | Reward processing | |
| Right Putamen | Motor control |  |
| | Learning from rewards and punishments | |
| Right Thalamus | Sensory relay |  |
| | Processing of sensory information | |
| Total Number of Regions | | 10 |

Cerebellum & Brainstem:

| Region Name | Two main functions | Screenshot |
|-------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Cerebellum | Motor coordination and balance |  |
| | Learning and memory related to motor skills | |
| Brainstem | Regulation of vital functions such as breathing and heart rate. |  |
| | Transmission of neural signals between the brain and the rest of the body | |