```
Node< char > * starterNode
       - std::vector< Edge<
       char > * > edges
       + Model()
       + char * RandomWalk(Markov
       ::Random::RandomEngine
       *randomEngine, int minSetting,
       int maxSetting, char *buffer)
       + void AdjustEdge(const
       char *payload, long
       int occurrence)
       + bool Import(std::ifstream *)
       + bool Import(const char
       *filename)
       + bool Export(std::ofstream *)
       + bool Export(const char
       *filename)
       + Node< char > * StarterNode()
       + std::vector< Edge<
       char > * > * Edges()
       + std::map< char, Node
       < char > * > * Nodes()
       + void OptimizeEdgeOrder()
        Markov::API::MarkovPasswords
- std::ifstream * datasetFile
std::ofstream * modelSavefile
std::ofstream * outputFile
+ MarkovPasswords()
+ MarkovPasswords(const
char *filename)
+ std::ifstream * OpenDataset
File(const char *filename)
+ void Train(const char
*datasetFileName, char
delimiter, int threads)
+ std::ofstream * Save
(const char *filename)
+ void Generate(unsigned
long int n, const char
*wordlistFileName, int
minLen=6, int maxLen=12,
int threads=20)
+ void Buff(const char
*str, double multiplier,
bool bDontAdjustSelfLoops
=true, bool bDontAdjustExtendedLoops=false)

    void TrainThread(Markov

::API::Concurrency::ThreadShared
ListHandler *listhandler, char
delimiter)

    void GenerateThread

(std::mutex *outputLock,
unsigned long int n, std
::ofstream *wordlist, int
minLen, int maxLen)
          Markov::API::ModelMatrix
   # char ** edgeMatrix
   # long int ** valueMatrix
   # int matrixSize
   # char * matrixIndex
   # long int * totalEdgeWeights
   # bool ready
                                                 Markov::API::CUDA::
   + ModelMatrix()
                                                    CUDADeviceController
   + bool ConstructMatrix()
   + void DumpISON()
   + int FastRandomWalk
   (unsigned long int n,
                                                  + static host void
                                                  ListCudaDevices()
    const char *wordlistFileName,
    int minLen=6, int maxLen
                                                 # static __host__ int
   =12, int threads=20, bool bFileIO=true)
                                                  CudaCheckNotifyErr
   + void Import(const char
                                                 (cudaError t status,
                                                  const char *msg, bool
    *filename)
   + void Train(const char
                                                  bExit=true)
    *datasetFileName, char
                                                 # static host cudaError
    delimiter, int threads)
                                                  t CudaMalloc2DToFlat(T
   # int FastRandomWalk
                                                  **dst, int row, int col)
   (unsigned long int n,
                                                 # static
                                                          host cudaError
                                                  t CudaMemcpy2DToFlat(T
    std::ofstream *wordlist,
    int minLen=6, int maxLen
                                                  *dst, T **src, int row,
   =12, int threads=20, bool
                                                  int col)
    bFileIO=true)
                                                 # static host cudaError
   # void FastRandomWalkPartition
                                                  t CudaMigrate2DFlat(T
                                                  **dst, T **src, int row,
   (std::mutex *mlock, std::
   ofstream *wordlist, unsigned
                                                  int col)
    long int n, int minLen, int
    maxLen, bool bFileIO, int threads)
   # void FastRandomWalkThread
   (std::mutex *mlock, std
   ::ofstream *wordlist, unsigned
    long int n, int minLen, int
    maxLen, int id, bool bFileIO)
   # bool DeallocateMatrix()
                       Markov::API::CUDA::
                                  CUDAModelMatrix
                       - char * device edgeMatrix

    long int * device valueMatrix

    char * device matrixIndex

    long int * device totalEdge

                       Weights
                       - char ** device outputBuffer
                       char ** outputBuffer
                       - char * flatEdgeMatrix

    long int * flatValueMatrix

    int cudaBlocks

    int cudaThreads

                       - int iterationsPerKernelThread

    long int totalOutputPerSync

    long int totalOutputPerKernel

                       - int numberOfPartitions
                       - int cudaGridSize

    int cudaMemPerGrid

                       - long int cudaPerKernelAllocationSize

    int alternatingKernels

    unsigned long ** device

                       seeds

    cudaStream t * cudastreams

                           host void MigrateMatrix()
                       + __host__ void FlattenMatrix()
+ __host__ void FastRandom
                       Walk(unsigned long int
                        n, const char *wordlistFileName,
                        int minLen, int maxLen, bool
                        bFileIO, bool bInfinite)
                           host char * AllocVRAMOutput
                       Buffer(long int n, long int
                       singleGenMaxLen, long int CUDAKernel
                       GridSize, long int sizePerGrid)
                       # host void LaunchAsync
                       Kernel(int kernelID, int
                       minLen, int maxLen)
                       # host void prepKernel
                       MemoryChannel(int numberOfStreams)
                       # host void GatherAsync
                       KernelOutput(int kernelID,
                        bool bFileIO, std::ofstream
                        &wordlist)
                          Python.CudaMarkopy.CudaModel
                                      MatrixCLI
                          + model
                          + bInfinite
                                  init (self)
                          + def
```

+ def add_arguments(self)+ def init post arguments

Python.CudaMarkopy.CudaMarkopyCLI

init (self)

def generate(self,

str wordlist)

(self)

+ args + cli

+ None

+ def help(self)+ def parse(self)+ def parse fail(self)

Markov::Model< char >

- std::map< char, Node
< char > * > nodes