Program Hierarchy

Part 1

Makefile

command: create

to compile creat

creat.cpp

command: ./creat

links struct

nodes struct

factoral – calculate factoral

permutation – Calculate max number of links

main -Calculate a connected graph with 150 nodes

Part 2

Makefile

command: make

to compile all files in directory.

main.cpp

command: ./main <seed> <Graph>

main - initializes seed

Calls all other functions

Checks if a graph is connected

Runs the global clock for 1000 seconds

do_statistics - which outputs all stats required at end of runtime.

packet.cpp/packet.h

packet struct type

create_packet - function that sets all values of a packet.

routing_table.cpp/routing_table.h

calc_table - function that calculates the shortest links between all nodes

random.cpp/random.h

uniformInt - calculates link delay

uniformDouble - calculates bandwidth delay

exponential - calculates for packet distribution

initialize.cpp/initialize.h

initialize - reads from graph file given and sets all variables

calls all random functions to initialize all delays.

select - calculates 20 random pair-destination pairs.

routing.cpp/routing.h

routing - creates a packet at a given src and starts to send that packet

output - packets at 0 position of output queue are sent to forward

input - packets are kept in input queue until the clock has run down at which time it is transferred to output to be moved on.

forward – take the packet given and forward it to the input queue of the next node in its path to destination