

Appendix A Old requirements

The following pages show the old requirements.

Appendix B Old specifications

Included on the CD due its large size.

Appendix C Poisson distribution algorithm code

```
int poisson(double lambda){

    int count;
    static int total=0;
    double product;
    double zero_probability;
    ofstream tests;
    int debug=0;

    if (debug)
        tests.open("test.txt",ios::app);

    // lambda is the average arrival rate per minute
    // however, the unit time for the simulation is seconds
    // therefore, we need to convert lambda to arrival rate per second
    // we then multiply by the time interval to produce the arrival
rate per time interval

    lambda=timeInterval*lambda/60;

    count = 0;
    product = (double) rand () / (double) RAND_MAX;

    zero_probability = exp(-lambda);

    while (product > zero_probability)
    {
        count++;
        product = product * ((double) rand() / (double) RAND_MAX);
    }

    if (debug)
        tests << count <<" count" <<endl;

    if (debug)
        tests.close();

    //intf("%d\r",total+=count);

    return (count);

}
```

Appendix D Normal distribution algorithm

```
double sample_normal(double mean, double std_dev) {

    // generate a random sample from a Normal distribution with a given mean
    and standard deviation
    // use the function rand to generate a random number

    double c, z=0, w, w1, w2, urs; // urs: uniform random sample

    // now compute the random sample
    while(z <= 0){
        do {
            urs = rand() / (double) RAND_MAX; // generate a uniform
random sample in the interval 0-1
            w1= 2*urs -1;

            urs = rand() / (double) RAND_MAX;
            w2= 2*urs -1;

            w = w1*w1 + w2*w2;
        } while (w >= 1);

        c = sqrt((-2*log(w)) / w);

        z = c * w1;    // z is a random sample for standard normal
distribution
                        // i.e. with mean of zero and variance 1
                        // we could also have assigned z = c / w2;

        z = mean + z * std_dev; // convert it to the required normal
distribution
    }

    return (z);
}
```

Appendix E Program code and Visual C++[®] files

The files that are included on the included CD are:

Project.cpp
Project.dsp
Project.dsw
Project.exe
TLS.txt