

Homework #5 – Binary file viewer

For this homework you will have to create a binary file viewer. This program will read in a file byte for byte and print the hexadecimal values and the ASCII representation to the console output, 16 bytes at a time. After reading 20 lines of 16 bytes, the user should be prompted with a message “Press ENTER to continue”. If the end of file has not been detected, the program will start reading in the next 20 lines of 16 bytes (or less if the EOF file has been detected). A binary file viewer will view all the bytes in the file, including whitespace, and will print a ‘.’ whenever the byte is considered a control character. You should use C++ code for opening and reading files, displaying messages to the console output and reading in from the console output (printf, fprintf, fscanf, fopen, and fclose functions should NOT be used)

Visual Studio Command Prompt (2010)

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D:\Users\...> cd D:\Documents\Dropbox\Fall 2012\EGRE246\Assignments\HW5\Solution\hw5
g++ ex3.cpp
# include <iostream>
using namespace std;
int main(void){
    double a = 1011;
    int b = 1;
    int c = 1;
    double d = 1;
    double e = 1;
    double f = 1;
    double g = 1;
    double h = 1;
    double i = 1;
    double j = 1;
    double k = 1;
    double l = 1;
    double m = 1;
    double n = 1;
    double o = 1;
    double p = 1;
    double q = 1;
    double r = 1;
    double s = 1;
    double t = 1;
    double u = 1;
    double v = 1;
    double w = 1;
    double x = 1;
    double y = 1;
    double z = 1;
    double A = 1;
    double B = 1;
    double C = 1;
    double D = 1;
    double E = 1;
    double F = 1;
    double G = 1;
    double H = 1;
    double I = 1;
    double J = 1;
    double K = 1;
    double L = 1;
    double M = 1;
    double N = 1;
    double O = 1;
    double P = 1;
    double Q = 1;
    double R = 1;
    double S = 1;
    double T = 1;
    double U = 1;
    double V = 1;
    double W = 1;
    double X = 1;
    double Y = 1;
    double Z = 1;
    double Aa = 1;
    double Bb = 1;
    double Cc = 1;
    double Dd = 1;
    double Ee = 1;
    double Ff = 1;
    double Gg = 1;
    double Hh = 1;
    double Ii = 1;
    double Jj = 1;
    double Kk = 1;
    double Ll = 1;
    double Mm = 1;
    double Nn = 1;
    double Oo = 1;
    double Pp = 1;
    double Qq = 1;
    double Rr = 1;
    double Ss = 1;
    double Tt = 1;
    double Uu = 1;
    double Vv = 1;
    double Ww = 1;
    double Xx = 1;
    double Yy = 1;
    double Zz = 1;
    double AaBb = 1;
    double BbCc = 1;
    double CcDd = 1;
    double DdEe = 1;
    double EeFf = 1;
    double FfGg = 1;
    double GgHh = 1;
    double HhIi = 1;
    double IiJj = 1;
    double JjKk = 1;
    double KkLl = 1;
    double LlMm = 1;
    double MmNn = 1;
    double NnOo = 1;
    double OoPp = 1;
    double PpQq = 1;
    double QqRr = 1;
    double RrSs = 1;
    double SsTt = 1;
    double TtUu = 1;
    double UuVv = 1;
    double VvWw = 1;
    double WwXx = 1;
    double XxYy = 1;
    double YyZz = 1;
    double AaBbCc = 1;
    double BbCcDd = 1;
    double CcDdEe = 1;
    double DdEeFf = 1;
    double EeFfGg = 1;
    double FfGgHh = 1;
    double GgHhIi = 1;
    double HhIiJj = 1;
    double IiJjKk = 1;
    double JjKkLl = 1;
    double KkLlMm = 1;
    double LlMmNn = 1;
    double MmNnOo = 1;
    double NnOoPp = 1;
    double OoPpQq = 1;
    double PpQqRr = 1;
    double QqRrSs = 1;
    double RrSsTt = 1;
    double SsTtUu = 1;
    double TtUuVv = 1;
    double UuVvWw = 1;
    double VvWwXx = 1;
    double WwXxYy = 1;
    double XxYyZz = 1;
    double AaBbCcDd = 1;
    double BbCcDdEe = 1;
    double CcDdEeFf = 1;
    double DdEeFfGg = 1;
    double EeFfGgHh = 1;
    double FfGgHhIi = 1;
    double GgHhIiJj = 1;
    double HhIiJjKk = 1;
    double IiJjKkLl = 1;
    double JjKkLlMm = 1;
    double KkLlMmNn = 1;
    double LlMmNnOo = 1;
    double MmNnOoPp = 1;
    double NnOoPpQq = 1;
    double OoPpQqRr = 1;
    double PpQqRrSs = 1;
    double QqRrSsTt = 1;
    double RrSsTtUu = 1;
    double SsTtUuVv = 1;
    double TtUuVvWw = 1;
    double UuVvWwXx = 1;
    double VvWwXxYy = 1;
    double WwXxYyZz = 1;
    double AaBbCcDdEe = 1;
    double BbCcDdEeFf = 1;
    double CcDdEeFfGg = 1;
    double DdEeFfGgHh = 1;
    double EeFfGgHhIi = 1;
    double FfGgHhIiJj = 1;
    double GgHhIiJjKk = 1;
    double HhIiJjKkLl = 1;
    double IiJjKkLlMm = 1;
    double JjKkLlMmNn = 1;
    double KkLlMmNnOo = 1;
    double LlMmNnOoPp = 1;
    double MmNnOoPpQq = 1;
    double NnOoPpQqRr = 1;
    double OoPpQqRrSs = 1;
    double PpQqRrSsTt = 1;
    double QqRrSsTtUu = 1;
    double RrSsTtUuVv = 1;
    double SsTtUuVvWw = 1;
    double TtUuVvWwXx = 1;
    double UuVvWwXxYy = 1;
    double VvWwXxYyZz = 1;
    double AaBbCcDdEeFf = 1;
    double BbCcDdEeFfGg = 1;
    double CcDdEeFfGgHh = 1;
    double DdEeFfGgHhIi = 1;
    double EeFfGgHhIiJj = 1;
    double FfGgHhIiJjKk = 1;
    double GgHhIiJjKkLl = 1;
    double HhIiJjKkLlMm = 1;
    double IiJjKkLlMmNn = 1;
    double JjKkLlMmNnOo = 1;
    double KkLlMmNnOoPp = 1;
    double LlMmNnOoPpQq = 1;
    double MmNnOoPpQqRr = 1;
    double NnOoPpQqRrSs = 1;
    double OoPpQqRrSsTt = 1;
    double PpQqRrSsTtUu = 1;
    double QqRrSsTtUuVv = 1;
    double RrSsTtUuVvWw = 1;
    double SsTtUuVvWwXx = 1;
    double TtUuVvWwXxYy = 1;
    double UuVvWwXxYyZz = 1;
    double AaBbCcDdEeFfGg = 1;
    double BbCcDdEeFfGgHh = 1;
    double CcDdEeFfGgHhIi = 1;
    double DdEeFfGgHhIiJj = 1;
    double EeFfGgHhIiJjKk = 1;
    double FfGgHhIiJjKkLl = 1;
    double GgHhIiJjKkLlMm = 1;
    double HhIiJjKkLlMmNn = 1;
    double IiJjKkLlMmNnOo = 1;
    double JjKkLlMmNnOoPp = 1;
    double KkLlMmNnOoPpQq = 1;
    double LlMmNnOoPpQqRr = 1;
    double MmNnOoPpQqRrSs = 1;
    double NnOoPpQqRrSsTt = 1;
    double OoPpQqRrSsTtUu = 1;
    double PpQqRrSsTtUuVv = 1;
    double QqRrSsTtUuVvWw = 1;
    double RrSsTtUuVvWwXx = 1;
    double SsTtUuVvWwXxYy = 1;
    double TtUuVvWwXxYyZz = 1;
    double AaBbCcDdEeFfGgHh = 1;
    double BbCcDdEeFfGgHhIi = 1;
    double CcDdEeFfGgHhIiJj = 1;
    double DdEeFfGgHhIiJjKk = 1;
    double EeFfGgHhIiJjKkLl = 1;
    double FfGgHhIiJjKkLlMm = 1;
    double GgHhIiJjKkLlMmNn = 1;
    double HhIiJjKkLlMmNnOo = 1;
    double IiJjKkLlMmNnOoPp = 1;
    double JjKkLlMmNnOoPpQq = 1;
    double KkLlMmNnOoPpQqRr = 1;
    double LlMmNnOoPpQqRrSs = 1;
    double MmNnOoPpQqRrSsTt = 1;
    double NnOoPpQqRrSsTtUu = 1;
    double OoPpQqRrSsTtUuVv = 1;
    double PpQqRrSsTtUuVvWw = 1;
    double QqRrSsTtUuVvWwXx = 1;
    double RrSsTtUuVvWwXxYy = 1;
    double SsTtUuVvWwXxYyZz = 1;
    double AaBbCcDdEeFfGgHhIi = 1;
    double BbCcDdEeFfGgHhIiJj = 1;
    double CcDdEeFfGgHhIiJjKk = 1;
    double DdEeFfGgHhIiJjKkLl = 1;
    double EeFfGgHhIiJjKkLlMm = 1;
    double FfGgHhIiJjKkLlMmNn = 1;
    double GgHhIiJjKkLlMmNnOo = 1;
    double HhIiJjKkLlMmNnOoPp = 1;
    double IiJjKkLlMmNnOoPpQq = 1;
    double JjKkLlMmNnOoPpQqRr = 1;
    double KkLlMmNnOoPpQqRrSs = 1;
    double LlMmNnOoPpQqRrSsTt = 1;
    double MmNnOoPpQqRrSsTtUu = 1;
    double NnOoPpQqRrSsTtUuVv = 1;
    double OoPpQqRrSsTtUuVvWw = 1;
    double PpQqRrSsTtUuVvWwXx = 1;
    double QqRrSsTtUuVvWwXxYy = 1;
    double RrSsTtUuVvWwXxYyZz = 1;
    double AaBbCcDdEeFfGgHhIiJj = 1;
    double BbCcDdEeFfGgHhIiJjKk = 1;
    double CcDdEeFfGgHhIiJjKkLl = 1;
    double DdEeFfGgHhIiJjKkLlMm = 1;
    double EeFfGgHhIiJjKkLlMmNn = 1;
    double FfGgHhIiJjKkLlMmNnOo = 1;
    double GgHhIiJjKkLlMmNnOoPp = 1;
    double HhIiJjKkLlMmNnOoPpQq = 1;
    double IiJjKkLlMmNnOoPpQqRr = 1;
    double JjKkLlMmNnOoPpQqRrSs = 1;
    double KkLlMmNnOoPpQqRrSsTt =
```

Notice the hexadecimal values being capitalized. Check the correctness of your program on the source file you create for this homework.

The file name to be viewed should be a command-line argument to the program. If the file cannot be opened, a brief message to the user should be printed and the program should exit. This message must include the file name that the program is trying to open. If the second command-line argument is not a filename, but ‘/?’ or when the usage of the program is not appropriate, the following message should be displayed.

```
"Binary file viewer  
Usage: hw5 [input filename]"
```

The following methods and functions might be useful for completing your program.

Methods/functions:

- fstream get() method
- isprint() function

Standard IO manipulators

- setw()

I recommend researching these commands using the www.cplusplus.com website. It is very important that you start to learn how to use this website to your advantage.

Researching the usage of a specific function/method does not violate the honor code, this information might as well been given in the book or in class. Searching for C++ code describing a hexadecimal file viewer is in violation with the honor code. This applies to all homework assignments!

Do not use “magic numbers” for the 20 (lines) and 16 (bytes) to be shown in the program.

As a test you can try to read in the testASCII.bin file and you can test the object file created while compiling this program.