```
Script started on 2023-06-04 22:51:23-05:00 [TERM="xterm-256color" TTY="/dev/pts/0" COLUMNS="128" LINES="54"]
pw[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ pwd
[?2004l
/home/jovyan/Project1
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ ls -l
[?2004l
total 8
-rw-r--r-- 1 jovyan users 2397 Jun  4 22:49 project1.c
-rw-r--r-- 1 jovyan users    0 Jun  4 22:51 project1.txt
-rw-r--r-- 1 jovyan users  202 Jun  4 18:41 test.txt
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ cat -n project1.c
[?2004l
/* Name:    Timothy Beckett
 * Project: 1
 * Description: Write a C program that takes a single command-line argument and produces the same output as the xxd
 * program withthe same argument. You must include meaningful comments on your code. You must name your program file as
 * project1.c.
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * */
#include <stdio.h>
#include <ctype.h>

int offset[16] = { 30, 28, 26, 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0 };

void InitArray(int size, char* buffer);

int main(int argc, char** argv)
{
    // Note that the first element in argv is "./Project1".  The file name will be in the 2nd element.

    char input;
    char output[17];
    FILE* filePtr;
    int line = 0, // line counter.
    spacer = 0,   // tracking spaces for hex dump.
    count = 0;    // tracking the character count for the line.

    filePtr = fopen(argv[1], "r");

    InitArray(17, output);

    // print 1st line line number.
    printf("%07x0: ", line);

    // read characters till the end of the file.
    while(fscanf(filePtr, "%c", &input) != EOF)
    {

        output[count] = input;
        count++;

        // handling line feeds
        if (input == 10)
        {
            output[count - 1] = '.';
            printf("0a");
        }
        // check if printable character.
        else if (!isprint(input))
        {
            printf(".");
        }
        else
        {
            printf("%x", input);
        }

        // print a space every 2nd character.
        spacer = (spacer + 1) % 2;

        if (spacer == 0)
            printf(" ");

        // dump the buffer and advance to a new line very 16th character.
        if (count == 16)
        {
            line++;
            printf(" %s\n%07x0: ", output, line);
            count = 0;
            InitArray(17, output);
        }
    }

```

```
    71      if (count < 16)
    72      {
    73
    74          // print place holders to maintain formatting
    75          for (int i = offset[count - 1]; i > 0; i--)
    76              printf(" ");
    77
    78          printf("   %s\n", output);
    79      }
    80
    81      fclose(filePtr);
    82
    83      return 0;
    84  }
    85
    86  void InitArray(int size, char* buffer)
    87  {
    88      for (int i = 0; i < size; i++)
    89          buffer[i] = '\0';
    90  }[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ gcc
project1.c -o po[Kroject1
[?2004l
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ xxd test.txt
[?2004l
00000000: 496d 706f 7274 616e 7420 4869 6e74 3a20  Important Hint:
00000010: 0a0a 5468 6520 6973 7072 696e 7428 2920  ..The isprint()
00000020: 6675 6e63 7469 6f6e 2063 6865 636b 7320  function checks
00000030: 7768 6574 6865 7220 6120 6368 6172 6163  whether a charac
00000040: 7465 7220 0a69 7320 6120 7072 696e 7461  ter .is a printa
00000050: 626c 6520 6368 6172 6163 7465 7220 6f72  ble character or
00000060: 206e 6f74 2e0a 4368 6563 6b20 6d6f 7265   not..Check more
00000070: 2069 6e66 6f72 6d61 7469 6f6e 2069 6e3a   information in:
00000080: 200a 6874 7470 733a 2f2f 7777 772e 7072   .https://www.pr
00000090: 6f67 7261 6d69 7a2e 636f 6d2f 632d 7072  ogramiz.com/c-pr
000000a0: 6f67 7261 6d6d 696e 672f 6c69 6272 6172  ogramming/librar
000000b0: 792d 6675 6e63 7469 6f6e 2f63 7479 7065  y-function/ctype
000000c0: 2e68 2f69 7370 7269 6e74                 .h/isprint
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ x[K./project1
po[Kroject1.c > actual[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K[K./project1 test.txt
[?2004l
00000000: 496d 706f 7274 616e 7420 4869 6e74 3a20  Important Hint:
00000010: 0a0a 5468 6520 6973 7072 696e 7428 2920  ..The isprint()
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00000040: 7465 7220 0a69 7320 6120 7072 696e 7461  ter .is a printa
00000050: 626c 6520 6368 6172 6163 7465 7220 6f72  ble character or
00000060: 206e 6f74 2e0a 4368 6563 6b20 6d6f 7265   not..Check more
00000070: 2069 6e66 6f72 6d61 7469 6f6e 2069 6e3a   information in:
00000080: 200a 6874 7470 733a 2f2f 7777 772e 7072   .https://www.pr
00000090: 6f67 7261 6d69 7a2e 636f 6d2f 632d 7072  ogramiz.com/c-pr
000000a0: 6f67 7261 6d6d 696e 672f 6c69 6272 6172  ogramming/librar
000000b0: 792d 6675 6e63 7469 6f6e 2f63 7479 7065  y-function/ctype
000000c0: 2e68 2f69 7370 7269 6e74                .h/isprint
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ xxd project1.c >
ac[K[K[K[K> expectedOutput.txt
[?2004l
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ x[K./project1
project1.c > ac t[K[KtualOutput.txt
[?2004l
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ diff
expectedOutput.txt actualOutput.txt
[?2004l
[?2004h(base) ]0;jovyan@jupyter-tdb2q: ~/Project1[01;32mjovyan@jupyter-tdb2q[00m:[01;34m~/Project1[00m$ exit
[?2004l
exit

Script done on 2023-06-04 22:53:56-05:00 [COMMAND_EXIT_CODE="0"]
```