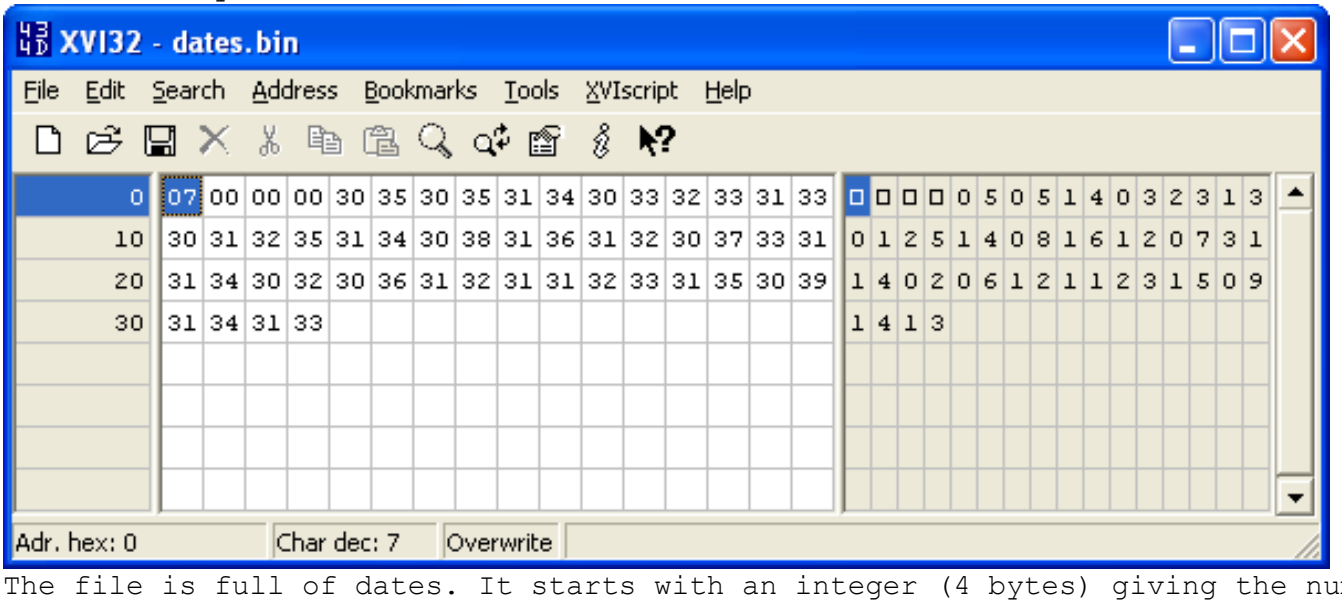
TCSS 333 Midterm Exam examples-You are also responsible for opening/reading/writing text and binary files, pointer arithmetic, dynamic memory allocation, and the examples presented in class and posted on Canvas.

This will be open book, open notes 2 pages MAX! and NO ELECTRONIC DEVICES!

1. What output is produced by this program?

```
void fun1(int *ptr1, int *ptr2) {
 (*ptr1) = (*ptr2);
 ptr1++; ptr2--;
 (*ptr1) = (*ptr2);
}
int main(void) {
 int nums1[] = {2,4,6,8,10};
 int nums2[] = {1,3,5,7,9};
 fun1(nums1,&nums2[4]);
 printf("%d %d %d %d %d",
        nums1[0], nums1[1], nums1[2], nums1[3], nums1[4]);
}
```

2. The binary file dates.bin is shown in a hexadecimal editor:

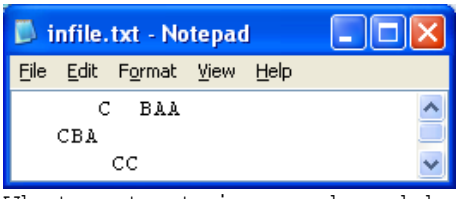


The file is full of dates. It starts with an integer (4 bytes) giving the number of dates. The dates are formatted as MMDDYY (two chars for the month, two chars for the day, and two chars for the year). Write a program that reads in this file (or any similarly formatted version of it) and stores all dates from 2014 into a new file called newdates.bin. The new file is a binary file with the same format as dates.bin .

3. What output is produced by this program?

```
void fun2(int **p) {
 (*p)++;
}
void fun1(int *p) {
 int t = *p;
 fun2(&p); *p = t;
}
main(void) {
 int nums[] = {10,20,30,40};
 fun1(nums);
 printf("%d %d %d %d", nums[0], nums[1], nums[2], nums[3]);
}
```

4. The text file infile.txt contains 3 lines:



What output is produced by this program?

```
int main(void) {
 FILE* infile = fopen("infile.txt","r");
 char str[20];
 int n;
 int i;
 while (fscanf(infile,"%s",str) == 1)
 {
  n = 0;
  for (i = 0; str[i] != 0; i++) {
   n = n + (str[i]-'A'+1);
  }
  printf("%d ",n);
 }
 fclose(infile);
 return 0;
}
```

5. What output is produced by this program?

```
#define MAXNAMELEN 20
main() {
  int i, j;
  char amNames[][MAXNAMELEN] = {"Andrew", "Liam",
                                "Jacob", "Mason", "Bart"};
  int amLen = 5;
  char canNames[][MAXNAMELEN] = {"Nathan", "Andrew","Lucas",
                                 "Jacob", "William", "Liam"};
  int canLen = 6;
  for(i = 0; i < amLen; i++) {
    for (j = 0; j < canLen; j++) {
      if (strlen(amNames[i]) == strlen(canNames[j]) &&
          strcmp(amNames[i], canNames[j]) < 0)
        printf("%s %s\n", amNames[i], canNames[j]);
    }
  }
  return 0;
}
```

6. Assuming the executable file name of run and the following were typed at the command prompt: **./run This file input.txt is Only a test**

what output is produced by the following program:

```
#include <stdio.h>
void curious(int, char **);
int main(int n, char **a) {
  curious(n, a);
  return 0;
}
void curious(int n, char **p) {
  int i = n;
   do {
    printf("%5d: %s\n", n - i, *p++);
    } while (--i);
}
```