The program is split into multiple files, globals.h which contains global variables for the program, ptable.h which contains the page table and associated functions, macros.h contains macros for handling the data. main.c contains the main function. It uses the file "BACKING_STORE.bin" as the backing store. It opens the file passed as an argument and reads it as a list of integers using atoi, it then calls the retrieve function using each number in the file. The retrieve function then uses the macro PAGE to retrieve the page from the address. It gets the entry in the page table and checks the VI bit using the VI_BIT macro. If the VI_BIT is valid it uses the offset and the frame number to retrieve the byte from memory. If the VI_BIT is invalid the program find an unpopulated frame and reads the backing store file into the empty frame, it uses the BUNDLE macro to create a page table entry. It then does the same as what the receive function does for a valid entry. At the end it prints some statistics and exits.

You can compile it using the command   "gcc main.c"

Program 1 Sample Execution:

```
$ ./a.exe addresses.exe
Virtual address: 16916 Physical address: 20 Value: 0
Virtual address: 62493 Physical address: 285 Value: 0
Virtual address: 30198 Physical address: 758 Value: 29
Virtual address: 53683 Physical address: 947 Value: 108
Virtual address: 40185 Physical address: 1273 Value: 0
Virtual address: 28781 Physical address: 1389 Value: 0
Virtual address: 24462 Physical address: 1678 Value: 23
Virtual address: 48399 Physical address: 1807 Value: 67
....
Virtual address: 6957 Physical address: 26413 Value: 0
Virtual address: 2301 Physical address: 35325 Value: 0
Virtual address: 7736 Physical address: 57912 Value: 0
Virtual address: 31260 Physical address: 23324 Value: 0
Virtual address: 17071 Physical address: 175 Value: -85
Virtual address: 8940 Physical address: 46572 Value: 0
Virtual address: 9929 Physical address: 44745 Value: 0
Virtual address: 45563 Physical address: 46075 Value: 126
Virtual address: 12107 Physical address: 2635 Value: -46
Number of Translated Addresses = 1000
Page Faults = 244
Page Fault Rate = 0.244
```