1.
-g request the compiler to retain the debugging symbols and information from the source level inside the executable.
This is useful in the case where the program crashes and produces a core file, or if it was deliberately ended by an OS
command like kill or if there is explicit code in the executable that is run which dumps the core. If in this case -g flag
is used then the debugger will read the symbol information and check it with the core

-Wall means warn all. It request the complier to dislay all the generated warnings.
It is commonly used to improve code writing style and generates a better code.

-ansi- In C mode, this is equivalent to -srtd=c90. In C++ mode, it is equivalent
to -std=c++98.It request the complier to implement the ANSI language option.It
turns off certain features of gcc that are incompatible with ANSI standards such as
asm and typeof keywords.

-pedantic: used in conjuction with -ansi,it tells the compiler to strictly to the ANSI
standard and not compile any code that is not ANSI compliant.

CFLAGS, CPPFLAGS AND CXXFLAGS used in compilation on which language used.
These flags are used to pass compilation options to the complier while compiling
the source code.CFLAGS used in C.CPPFLAGS used in C preprocessor.CXXFLAGS used in C++

2.

3.indent is a Unix utility that reformats C and C++ code in a user-defined indentation style and coding style.
indent -kr -i2 -pmt *.C *.h

-kr:'--k-and-r-style' Uses Kernighan & Ritchie coding style.
-i2: It is use to set identation value to 2
-pmt: It is used to store access and modification time of the file
.C.h specifies all the C files and header files

Therefore, this command indents all C files and header file with K and R style, with identation
level set to 2 and preserves modification and access time.

4.
fopen(): It is used to open a file to perform operations like reading, writing
fclose():It is used to closes an opened file
fread(): It is used to read the contents of a file to a memory space
referenced by a pointer that is passed to the function.
fwrite():It is used to write the contents of a memory space referenced
by a pointer to the file
fstat(): It is used to obtain information about a file which is pointed to by
the file descriptor passed to the fstat function.
fscanf(): It function is used to read the content of a file to a buffer variable,
both of which are pointed to by their respective pointer variables that are
passed as arguments to the function
fprintf(): It function is used to write the content of a buffer variable to a file,
both of which are pointed to by their repsective pointer variables that are passed as arguments to the function
printf(): It is used to display the output
sprintf():It is used to format a string and place it in a buffer

5. The five standard library routines are:
fseek(): It is used to moves file pointer position to given location
rewind(): It is used to moves file pointer position to the beginning of the file
remove(): It is used to delete a file
getchar() returns the next character typed on the keyboard.
putchar() outputs a single character to the screen.

system calls used by the code of P0:
write,nmao,mprotect,munmap,read,openat,fstat,close,brk,arch_prctl,access,execve(used strace -c ./P0)

6. In this program "for(;;)" loop is used for the infinite loop in which the shell prompt is displayed and then the user inputs the
command(using usage(),ncmd(),cmdtable() functions). If the command is an empty, i.e. "0, it is ignored, and the next iteration is done.
If the command is "#", it is ignored, and the next iteration is done. If the command starts with a "!" then it will pass the command to
the system using system function which will execute the command. But if the command does not fulfil any of these, then it will search the
list of predefined commands to see if the input matches any one of those commands(using strcmp). If it does, then the corresponding command
is executed. The list of defined commands also includes an exit command which terminates the program by calling the doQuit() function,
which releases the disks in use and then terminates the program with an exit(0) command.

7. strtok() is a string tokenizer function in the standard C library. The use of this function is not recommended because
it poses some security risks i.e. programs that contain strtok() function can be exploited as an entry point for a buffer
overflow attack. This is because strtok() does not set any limit on the maximum address space of the string variable,
thus enabling it to write over memory space outside of the string’s storage space. This is replaced by strtok_s()
function which adds two parameters, a maximum limit of space and ptr which eliminates the static variable state which
can provide strtok a way to re-enter the memory space.

gets() is a function that is used to read a line/string from the user input.Like the strtok() function, it is vulnerable to a buffer overflow
attack due to the fact that it imposes no limits on the size of the buffer that it uses, thereby exceeding the buffer limit and causes buffer
overflow. This exactly causes the Morris worm, which was one of the most important computer viruses in history. It exploits the weakness of
the gets() function in the fingerd daemon to modify the return address of the current activation record in the program stack.So when it
returned, it gave control to an execv() function which replaced the process with a shell which gave the attacker remote access to the vulnerable machine.

10.
i)"deletePrecedingBytes,nFragmentSize,argsRequired"-The variable names are too huge and its harder to see
whats going on. we can replace their names in short form
-deletePrecedingBytes: DelPreBytes,
nFragmentSize: nFragSize,
argsRequired:argsReq

There are also unneccesary comments like:

```
buf[strlen(buf) - 1] = '\0'; // remove the trailing \n
printf("cmd [%s]\n", buf); // just print out what we got as-is
char buf[1024];            // do not type > 1023 chars
continue;               // this is a comment line, do nothing
system(buf + 1);                // a normal shell cmd
```

ii)toNum,isAlphaNumDot,blockNumDest,byteDest-These names are comfortable because there are mentioned in shorter version and understandable.