

Computer Science & Engineering Department
I. I. T. Kharagpur

Compilers Laboratory: CS39003
3rd Year CSE: 5th Semester

Assignment - 2

Assignment Out: 5th August, 2010

Marks: 10

Report on or before: 15th August, 2010

1. Write a C program that takes a shared object ELF file (*.so*) as an input and prints the following information (assume 32-bit objects):
 - (a)
 - i. Data encoding,
 - ii. OS ABI, file type, architecture,
 - iii. Entry point,
 - iv. File offsets of the *program header* and the *section header* tables,
 - v. Size of each entry of the *program header table* as well as the *section header table*,
 - vi. Number of entries in the *program header* and *section header* tables.
 - (b) Print the strings present in all the string tables. A string table can be identified from the corresponding section header table entry. The value of the field **sh_type** is 3.
 - (c) Print the hex code corresponding to **.init()**. Find the offset of **.init** in the section header string table (0x76 = 118 in our example). Identify the section header table entry (entry-10 in our example) corresponding to that offset (field **sh_name**). Find the file offset for the section (field **sh_offset**, 0x35C = 860 in our example) and the size of the section (field **sh_size**, 0x30 = 48 in our example).
2. The name of the *shared object file* is given as a command-line argument. If there is no such file, print an appropriate message.
3. You are not suppose to use utility softwares like **objdump**, **readelf** or **elfdump**.
4. Send the completed assignment as a single C program file with the name *<group-no>.2.c*
5. Down-load the Xeon executable file '*submit*' from the **cse.iitkgp.ac.in/~goutam** site, change its mode to 755 and give the following command:

```
$ ./submit 2 file-name
```

The system will ask for the pass-word. Enter **compiler123**. You get a response:
file-name 100% 332 0.3KB/s 00:00

The first command-line argument is the assignment number.

Please do not send any e-mail to me with an attachment of assignment report.