

VE482 Lab6

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1. Plugin based software development

2. Zathura plugin-txt

To learn more about the txt plugin, see `./ex2/README.md`.

To install zathura

```
yay -S zathura
```

To build the plugin

```
meson build
cd build
ninja
ninja install
```

```
[2/2] Linking target libtxt.so
~/Desktop/Documents/VE482/lab6/ex2/build master !7 ?21 ninja install
[0/1] Installing files.
Installation failed due to insufficient permissions.
Attempting to use polkit to gain elevated privileges...
Installing libtxt.so to /usr/lib/zathura
~/De/Docu/VE482/lab6/ex2/build master !7 ?21
```

To test the plugin

```
zathura ${txt_file_name}
```

Test result:

Each time zathura reads a line, it prints "Hello" to stdout.

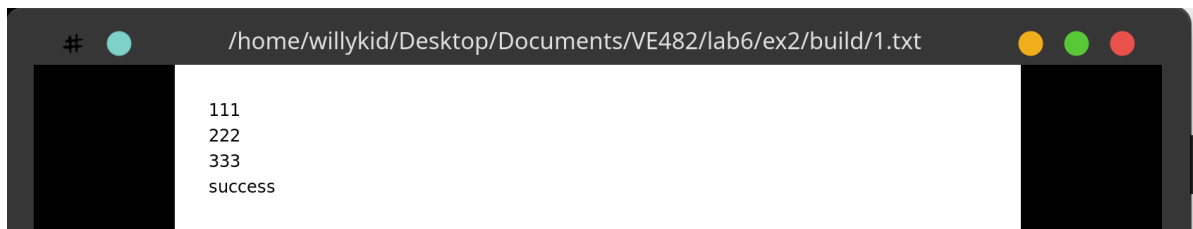
```
~/Desktop/Documents/VE482/lab6/ex2/build master !7 ?21 echo 111 >> 1.txt ✓
~/Desktop/Documents/VE482/lab6/ex2/build master !7 ?21 echo 222 >> 1.txt ✓
~/Desktop/Documents/VE482/lab6/ex2/build master !7 ?21 echo 333 >> 1.txt ✓
~/Desktop/Documents/VE482/lab6/ex2/build master !7 ?21 echo success >> 1.txt ✓
~/Desktop/Documents/VE482/lab6/ex2/build master !7 ?21 zathura 1.txt ✓

Hello
Hello
Hello
Hello

```

6 hrs 25 mins Ln 74, Col 37 Spaces: 2 UTF-8 LF C Linux

The text file is correctly displayed.



3. Design a plugin architecture

- `plugin-manager.h`: maintains a linked list that stores registered plugins

- ```
typedef int (*hook_t)(char *argv[]);

typedef struct _Manager {
 Handle *first;
} Manager;

typedef struct _Handle {
 hook_t hook; // function that gets the job done
 char type[32]; // name of the file type (txt or csv)
 Handle *next;
} Handle;
```

- explanation:

- `Manager` is a linked list structure that stores the first node to `Handle`.
  - `Handle` is used for the plugin to store its information.
  - The main function looks for `.so` plugin file in the `./plugins` directory. If found, the main function obtains a "handle", or the address of the function "init\_plugin", through which the plugin registers itself by adding a node "Handle" to the Manager of main.
  - The "hook" is a function pointer that gets the job done. In this case, the "hook" function is "ui\_cmd" that reads the file and sorts it.
- The code can handle 2 file types: txt or csv. To learn more, see `./ex3/README.md`.