AER E 361: Computational Techniques for Aerospace Design Writing Generic Code

Iowa State University

Git: Review

Git: Review

merge_conflict — bash — 80×22

bash | python | bash | bash

```
 1 file changed, 1 deletion(-)
dhcp-10-101-250-155:merge_conflict SUYEONSON$ git push
To git@github.com:suyeonson/merge_conflict.git
 ! [rejected]        master -> master (fetch first)
error: failed to push some refs to 'git@github.com:suyeonson/merge_conflict.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
dhcp-10-101-250-155:merge_conflict SUYEONSON$ git pull origin master
remote: Counting objects: 9, done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 9 (delta 3), reused 9 (delta 3)
Unpacking objects: 100% (9/9), done.
From github.com:suyeonson/merge_conflict
 * branch            master     -> FETCH_HEAD
   aba7c5d..e35231b  master     -> origin/master
Auto-merging index.html
CONFLICT (content): Merge conflict in index.html
Automatic merge failed; fix conflicts and then commit the result.
dhcp-10-101-250-155:merge_conflict SUYEONSON$
```

gdb: Review

- Best tool for watching complex things, like what's stored in memory
- Don't need to figure out what type to print like `printf`

Struct

```
struct [structure name] {
        member definition;
        member definition;
        ...
        member definition;
    };
```

Union

```
union [union name] {
        member definition;
        member definition;
        ...
        member definition;
    };
```

Struct vs Union

Similarities

- User-defined combination types
- Members can be *any* type:
  - struct
  - union
  - bit field
  - int, char, array, pointer, ...
- support only assignment and sizeof operators
  - two struct/union(s) in = must have same members and member types
- can be passed by value
- access members with '.' operator

Struct vs Union

	STRUCTURE	UNION
Keyword	The keyword **struct** is used to define a structure	The keyword **union** is used to define a union.
Size	When a variable is associated with a structure, the compiler allocates the memory for each member. The size of structure is **greater than or equal to the sum of sizes of its members.**	when a variable is associated with a union, the compiler allocates the memory by considering the size of the largest memory. So, size of **union is equal to the size of largest member.**
Memory	Each member within a structure is assigned unique storage area of location.	Memory allocated is shared by individual members of union.
Value Altering	Altering the value of a member will not affect other members of the structure.	Altering the value of any of the member will alter other member values.
Accessing members	Individual member can be accessed at a time.	Only one member can be accessed at a time.
Initialization of Members	Several members of a structure can initialize at once.	Only the first member of a union can be initialized.

DEMO

The Power of Generic Code!

(void *)

https://www.youtube.com/watch?v=xxMMDfeh8_Y&feature=youtu.be

Function Pointers

https://www.youtube.com/watch?v=axngwDJ79GY