Users in UNIX

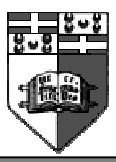
- Every user is assigned a unique username which is associated with a user ID and a group ID.
- Also every user has a password which is stored using a one way algorithm that generated 13 printable characters from 64.
- All this information is stored in */etc/passwd* and optionally in */etc/shadow* for security.
- Groups are stored in /etc/group.
- Password file format:

  username:password:UID:GID:Comment field:initial directory:initial shell

- Group file format:

  groupname:password:gid:user-list

- Every process is also assigned the UID and the GID of the process owner (see later).



Users in UNIX (cont)

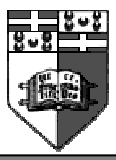
```
struct passwd {
  char *pw_name;
  char *pw_passwd;
  uid_t  pw_uid;
  gid_t  pw_gid;
  char *pw_gecos;
  char *pw_dir;
  char *pw_shell;
}
```

```
struct group{
  char *gr_name;
  char *gr_passwd;
  int gr_gid;
  char **gr_mem;
}
```

```
#include <sys/types.h>
#include <pwd.h>
struct passwd *getpwuid(uid_t uid);
struct passwd *getpwnam(const char *name);
#include <grp.h>
struct group *getgrgid(gid_t gid);
struct group *getgrname(const char *name);
```

- Every process has a PID with associated UID and GID. All details are in /proc/PID

  try *ps –uax* at command promp



System Identification

```
#include <sys/utsname.h>
int uname(struct utsname *name)
                              returns –1 on error
```

```
#include <unistd.h>
Int gethostname(char *name,int namelen)
```

```
struct utsname {
   char sysname[9];
   char nodename[9];
   char release[9];
   char version[9];
   char machine[9];
```

- These define completely the operating system type and the host name for portability of code.