VE280 Recitation Class (5)

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Outline

- About Project Two
- Pointer
- C-string Function
- Const
- Structure

Problem last week

-
  ```
  char a[20]=“abc”;
   a[3]=‘k’;                 //  ?
   cout<<a;                //  ?
  ```

-
  ```
  char a[4]=“abc”;
   a[3]=‘k’;                 //  ?
   cout<<a;                //  ?
  ```

Pointer

```
char c;
c = 'a' ;
char *pc;
*pc = 'a' ;
pc = 'a' ;
pc = "abcdefg" ;
pc = &c;
*pc = 'b';
```

```
int x;
x =12345;
int *px, *py;
*px = 12345;
px = &x;
*px = 6789;
*py = *px;
py = px;
*py = 1234
```

Function Pointer

- Why use them?
  - ✵ writing a function to perform a task
  - ✵ want the user to define how a particular part of that task will be performed
    - ✧eg. finding the max/min value of an array
- To use them:

```
int  (*foo)(int, int);
foo = min; // min() is predefined
foo(5,3); //explicit dereference
```

or:

```
(*foo)(5,3); //implicit dereference
```

C-string Function

- Please implement the function of strncpy()
-
  ```
  char*  strncpy(char *dest, const char *src, size_t n)
   {
         size_t i;
         for (i = 0 ; i < n && src[i] != '\0' ; i++)
                 dest[i] = src[i];
          for ( ; i < n ; i++)
                 dest[i] = '\0‘;
          return dest;
    }     //from the manual of the Linux  man-pages  project
  ```
- What might go wrong?

Const

```
char const ValueName = value;
const char ValueName = value;

char * const pContent;
char const * pContent; // the same with
const char * pContent;

const char* const pContent = &ValueName;
```

Const

Const in function

```
void function(const int Para);
void function1(const char* Para);
void function2(char* const Para);
void function(const Class& Para); //protect Para
void function(const TYPE& Para);
```

Return value

```
const int fun1();
const int * fun2();
int* const fun2();
```

Const

- In object-oriented programming:
  - class Class2
    { void Method1() const;
      int MemberVariable1;}
  - ban ethod1 in Class2 from altering any member variables in the object.

- const int*const Method(const int*const & par1)const;

See http://duramecho.com/ComputerInformation/WhyHowCppConst.html

Const

```
const int a=123;
const int b;                    // ??
b=a;                            // ??

const int* func(int b) {
        int *a=&b;
        return a;
}
int main() {
        const int * b =func(2);
        b = func(3);
}
```

struct

```
struct PERSON { // Declare PERSON
    int age; // Declare member types long ss;
   float weight;
   char name[25];
} family_member; // Define object of type PERSON int

int main() {
    PERSON sister={ 3 , 4, ”dadada”};
    PERSON brother; // C++ style structure declaration
    sister.age = 13; // assign values to members
    brother.age = 7;
 }
```

struct

```
struct rectangle
{
    int length;
    int height;
    int width;
};
int main()
{
    rectangle a[ ] = { {3 }, {4, 3 }, {5,3,4 }};
cout <<          a[1].length;
};
```