CSC230

Midterm

Mid-term

- March 21st
  - Dr. Li will be the proctor

- In-class, closed-book or notes, no electronics

- 90 mins, 9:30am – 11:00am

Mid-term

- Four types of questions (7+1 totally)

  - True or False

  - What is the output

  - Debug

  - Write a few lines of code (optional question)

Midterm review

- True or False
  - cin and cout are defined in namespace std.
  - Local variable can be defined outside any function.
  - Pointer is a variable that is an alias to another variable.
  - Pointer can be reassigned, reference cannot be reassigned
  - Global variables are stored in heap
  - Dynamically allocated data is stored in stack
  - The C++ program MUST use using namespace std;
  - One C++ program can have only one source file.

Midterm review

□ What is the output ?

```
void myth(int n){
  if(n>0){
    myth(n-1);
    for(int i =0; i< n; i++){
      cout << "#";
    }
    cout << endl;
  }
}

int main(int argc, char* argv[]){
  myth(atoi(argv[1]));
}
```

Midterm review

- What is the output ?

```
void myth(int n){
  if(n>0){
    for(int i =0; i< n; i++){
      cout << "*";
  }
  cout << endl;
  myth(n-1);
  }
}

int main(int argc, char* argv[]){
  myth(atoi(argv[1]));
}
```

Midterm review

- What is the output ?

```
bool foo(char* p){
  int i = strlen(p);
  char * r = p + i−1;
  while(p < r ){
    if(*p==*r){
      p++;
      r--; }
    else
      return false; }
  return true;}
int main(){
  char arr[] = "tcnjnct";

  cout << foo(arr) << endl;
}
```

Midterm review

□ What is the output ?

```
void bar(int& m,int* n){
  m = *n;
}

int main(){
  int a = 10;
  int& b = a;
  int c = 30;
  b = 20;
  bar(a, &c);
  cout << a << "\t" << b  << "\t"  << c << endl;
}
```

Midterm review

```
int main(){
  vector < vector <int> > vec;

  vec.resize(5);
  for(int i=0; i< 5; i++)
    vec[i].resize(6);

  for(int i=0; i<5; i++)
    for(int j=0; j<6; j++)
      vec[i][j] = j;

  for(int i=0; i<5; i++){
    for(int j=0; j<6; j++){
      cout << vec[i][j] << "\t";
    }
    cout << endl;
  }
}
```

Midterm review

```cpp
class A{
public:
    void foo(){
        cout << "foo A" << endl;
    }
    virtual void bar(){
        cout << "bar A" << endl;
    }
};
```

```cpp
class B:public A{
public:
    void foo(){
        cout << "From B" << endl;
    }
    void bar(){
        cout << "bar B" << endl;
    }
};
```

```cpp
int main(){
    A* p;
    B obj;
    p = &obj;
    p->foo();
    p->bar();
}
```