Tutorial 5 Group 01A 02A

2 October 2024

Problem 13.1

```
long square(long x)
 return x*x;
double hypotenuse_of(long base, long height)
 return sqrt(square(base) + square(height));
int main()
 hypotenuse_of(3, 4);
```

```
long square(long x)
{
    return x*x;
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double hypotenuse_of(long base, long height)
{
    return sqrt(square(base) + square(height));
}

int main()
{
    hypotenuse_of(3, 4);
}
```

base 3
height 4

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{
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double hypotenuse_of(long base, long height)
{
  return sqrt(square(base) + square(height));
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int main()
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  hypotenuse_of(3, 4);
}
```

hypotenuse_of base

X

square

base 3
height 4

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long square(long x)
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base 3
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}
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square x 4 hypotenuse_of base 3 height 4 main

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base 3
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int main()
{
    hypotenuse_of(3, 4);
}
```

```
Sqrt (x) E.-. 3
```

sqrt

× 25

hypotenuse_of

base 3

height

4

```
long square(long x)
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double hypotenuse_of(long base, long height)
{
    return sqrt(square(base) + square(height));
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{
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int main()
{
    hypotenuse_of(3, 4);
}
```

Problem 13.2

```
long factorial(long n) {
 if (n == 0) {
  return 1;
 return factorial(n-1) * n;
int main() {
 factorial(3);
```

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long factorial(long n) {
  if (n == 0) {
    return 1;
  }
  return factorial(n-1) * n;
}
int main() {
  factorial(3);
}
```

factorial n 3

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long factorial(long n) {
  if (n == 0) {
    return 1;
  }
  return factorial(n-1) * n;
}
int main() {
  factorial(3);
}
```

factorial n 2
factorial n 3
main

```
long factorial(long n) {
if (n == 0) {
 return 1;
return factorial(n-1) * n;
int main() {
factorial(3);
                         factorial
                         factorial
                         factorial
                                                      n
                                   main
```

```
long factorial(long n) {
if (n == 0) {
 return 1;
return factorial(n-1) * n;
                        factorial
int main() {
factorial(3);
                        factorial
                        factorial
                        factorial
                                                   n
                                 main
```

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long factorial(long n) {
if (n == 0) {
 return 1;
return factorial(n-1) * n;
int main() {
factorial(3);
                         factorial
                         factorial
                         factorial
                                                      n
                                   main
```

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long factorial(long n) {
  if (n == 0) {
    return 1;
  }
  return factorial(n-1) * n;
}
int main() {
  factorial(3);
}
```

factorial n 2
factorial n 3
main

```
long factorial(long n) {
  if (n == 0) {
    return 1;
  }
  return factorial(n-1) * n;
}
int main() {
  factorial(3);
}
```

factorial n 3

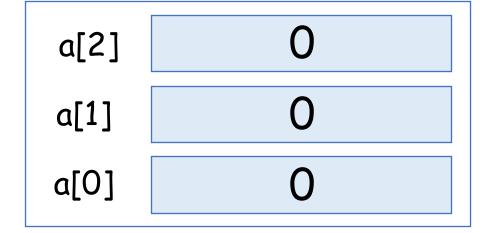
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  if (n == 0) {
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  return factorial(n-1) * n;
}
int main() {
  factorial(3);
}
```

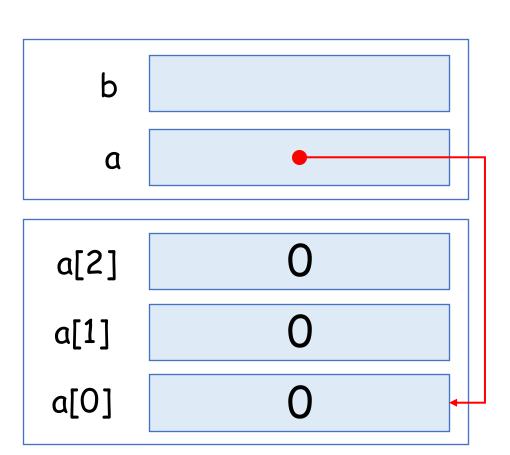
Problem 14.1

```
void doThat(long a[], long b[]) {
 a[0] = 100;
 b[1] = 200;
// Line A
void doThis(long a[]) {
 long *b = a;
 doThat(a, b);
int main() {
 long a[3] = \{0, 0, 0\};
 doThis(a);
// Line B
```

```
void doThat(long a[], long b[]) {
 a[0] = 100;
 b[1] = 200;
// Line A
void doThis(long a[]) {
 long *b = a;
 doThat(a, b);
int main() {
 long a[3] = \{0, 0, 0\};
 doThis(a);
// Line B
```

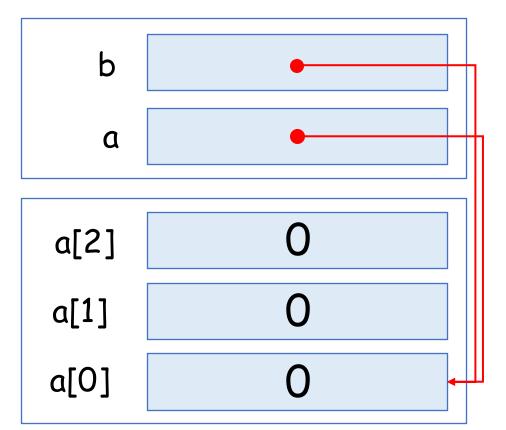


```
void doThat(long a[], long b[]) {
 a[0] = 100;
 b[1] = 200;
// Line A
void doThis(long a[]) {
 long *b = a;
 doThat(a, b);
int main() {
                                       doThis
 long a[3] = \{0, 0, 0\};
 doThis(a);
// Line B
                                              main
```



```
void doThat(long a[], long b[]) {
 a[0] = 100;
 b[1] = 200;
// Line A
void doThis(long a[]) {
 long *b = a;
 doThat(a, b);
int main() {
 long a[3] = \{0, 0, 0\};
 doThis(a);
// Line B
```

doThis

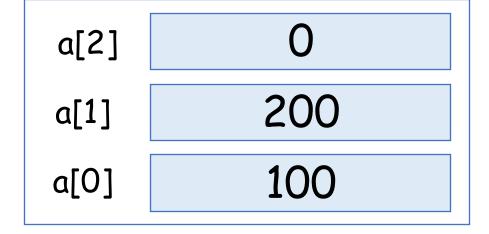


```
void doThat(long a[], long b[]) {
a[0] = 100;
b[1] = 200;
                                                                 b
// Line A
                                   doThat
void doThis(long a[]) {
                                                                 a
long *b = a;
doThat(a, b);
                                                                 b
int main() {
                                   doThis
long a[3] = \{0, 0, 0\};
doThis(a);
                                                                a
// Line B
                                                          a[2]
                                                          a[1]
                                        main
                                                          a[0]
```

```
void doThat(long a[], long b[]) {
a[0] = 100;
b[1] = 200;
// Line A
                                                              b
                                 doThat
void doThis(long a[]) {
                                                              a
long *b = a;
doThat(a, b);
                                                              b
int main() {
                                 doThis
long a[3] = \{0, 0, 0\};
doThis(a);
                                                              a
// Line B
                                                        a[2]
                                                                                 200
                                                       a[1]
                                      main
                                                       a[0]
```

```
void doThat(long a[], long b[]) {
a[0] = 100;
b[1] = 200;
// Line A
void doThis(long a[]) {
long *b = a;
doThat(a, b);
int main() {
long a[3] = {0, 0, 0};
doThis(a);
// Line B
```

```
main
```



Problem 14.2

```
void doThat(long list[]) {
 list[1] = 200;
 // Line A
void doThis(const long a[]) {
 long b[2] = \{10, 10\};
 a = b;
 doThat(a);
int main() {
 long a[3] = \{0, 0, 0\};
 doThis(a);
 // Line B
```

```
void doThat(long list[]) {
list[1] = 200;
// Line A
void doThis(const long a[]) {
long b[2] = \{10, 10\};
a = b;
                                                                                        10
                                                           b[1]
doThat(a);
                                                           b[0]
int main() {
                                   doThis
long a[3] = \{0, 0, 0\};
                                                                 a
doThis(a);
// Line B
                                                           a[2]
                                                          a[1]
                                        main
                                                          a[0]
```

```
void doThat(long list[]) {
list[1] = 200;
// Line A
void doThis(const long a[]) {
long b[2] = \{10, 10\};
a = b;
                                                                                        10
                                                           b[1]
doThat(a);
                                                           b[0]
int main() {
                                   doThis
long a[3] = \{0, 0, 0\};
                                                                 a
doThis(a);
// Line B
                                                           a[2]
                                                          a[1]
                                        main
                                                          a[0]
```

```
void doThat(long list[]) {
 list[1] = 200;
                                  doThat
// Line A
                                                          list
void doThis(const long a[]) {
long b[2] = \{10, 10\};
 a = b;
                                                                                     10
                                                        b[1]
 doThat(a);
                                                        b[0]
int main() {
                                  doThis
long a[3] = \{0, 0, 0\};
                                                               a
 doThis(a);
// Line B
                                                        a[2]
                                                        a[1]
                                       main
                                                        a[0]
```

```
void doThat(long list[]) {
list[1] = 200;
                                 doThat
// Line A
                                                        list
void doThis(const long a[]) {
long b[2] = \{10, 10\};
a = b;
                                                                                 200
                                                       b[1]
doThat(a);
                                                       b[0]
int main() {
                                 doThis
long a[3] = \{0, 0, 0\};
                                                             a
doThis(a);
// Line B
                                                       a[2]
                                                       a[1]
                                      main
                                                      a[0]
```

```
void doThat(long list[]) {
list[1] = 200;
// Line A
void doThis(const long a[]) {
long b[2] = \{10, 10\};
a = b;
doThat(a);
int main() {
long a[3] = \{0, 0, 0\};
 doThis(a);
// Line B
```

```
main
```

