Name:Osbaldo Gonzalez Jr.
Name:Sasha Saaed-Marmorstein

Checked: Group 6, Jerry Li and Luwei Tan
Checked: Group 5: Alex Lam, Jolen Reid, and Talal Al Shumais

Recursion Worksheet

1. What is returned by the call `fun1(3)` ?

```
int fun1(int x)
{
   if (x<1)
      return 1;
   else
      return x + fun1(x-1);
}
```

return 3 + fun(2); //7
return 2 + fun(1); //4
return 1 + fun(0); //2

2. What is output by the call `fun2(3)`?

```
void fun2(int x)
{
   if (x<1)
      cout << "\nDONE";
   else
   {
      cout << x;
      fun2(x-1);
   }
}
```

3 fun2(2)
2 fun2(1)
1 fun2(0)
321
DONE

3. What is output by the `func3(4)`?

```
void func3(int x)
{
   if (x<1)
      cout << "OUTPUT: ";
   else
   {
      func3(x-1);
      cout << x;
   }
}
```

OUTPUT: 1234

4. What is returned by the call `fun4(3,6)`?

5. What is returned by the call `fun4(4,2)`?

```
int fun4(int x, int y)
{
   if (y==2)
      return x;
   else
      return fun4(x, y-1) + x;
}
```

4.
return fun4(3, 5) + 3; //15
return fun4(3, 4) + 3; //12
return fun4(3, 3) + 3; //9
return fun4(3, 2) + 3; //6
5.
return 4;

6. What is output by the call `fun5(4)`?

7. What is returned by `fun6(8)`?

```
void fun5(int x)
{
    if (x<1)
      cout << "\n----\n";
    else
    {
      cout << x;
      fun5(x-1);
      cout << x;
    }
}
```

4321

1234

```
int fun6(int x)
{
    if (x < 1)
      return x;
    else
      return x + fun6(x-2);
}
```

return 8+fun6(6) //20 = fun6(8)
return 6+fun6(4) //
return 4+fun6(2) //6
return 2+fun6(0) //2

8. What is returned by `fun7(7,2)`?

9. What is returned by `fun7(5,5)`?

```
int fun7(int x, int y)
{
    if(y==2)
      return y;
    else
      return fun7(x, y-1) + x;
}
```

8.
The value returned is 2.
9.
//fun7(5, 5) = 17
return fun7(5, 4) + 5; //17
return fun7(5, 3) + 5; //12
return fun7(5, 2) + 5; //7
fun7(5, 2) = 2

10. What is returned by `fun8(2,8)`?

```
int fun8(int x, int y)
{
    if (x <=1)
      return y;
    else
      return fun8(x-1, y-1) + y;
}
```

fun8(2, 8) = 15
return fun8(1,7)+8; //15

11. What is returned by go(5)?

12. What is returned by `go(3)`?

```
int go(int x)
{
    if (x<1)
      return 1;
    else
```

13. What is returned by `fly(5)`?

```
int fly(int x)
{
    if (x<1)
      return 1;
    else
      return x + fly(x-4) +
fly(x-1);
```

```
      return x + go(x-2) +
go(x-3);
}
```

11.
go(5) //16
12.
go(3) //7

```
}
```

//fly(5) = 23

14. What is returned by `boogie(5,10)`?

```
int boogie(int x, int y)
{
    if (y<2)
      Return x;
    else
      return boogie(x, y-2)+x;
}
```

//30

15. What is output by the call `mango(12)`?

```
void mango(int k)
{
   if (k<2)
     cout << endl;
   else
   {
     if (k%2 == 0)
     {
        cout << k << " ";
        mango(k-1);
     }
     else
        mango(k-1);
   }
}
```

//12 10 8 6 4 2