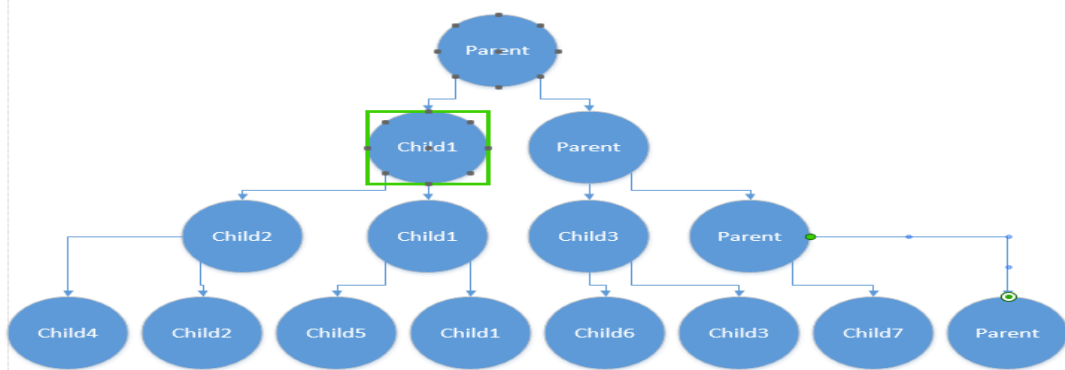-Cesar Vasquez
-Homework 1
-January 24, 2016

-Question 1:
The fork processes will create 8 processes including the parent. A picture of a diagram is provided below:

-Question 2:
-2a:
The picture of the code is below:

```cpp
//Cesar Vasquez
//HW Question 2a
#include <iostream>
#include <sys/types.h>
#include <unistd.h>
#include <sys/wait.h>
#include <stack>

using namespace std;

int main(){
        int p = 10;
        pid_t child;
        stack<pid_t> ances;

        for(int i=0; i<p; ++i){
                if(child == fork())
                        break;
                ances.push(getppid());
        }
        wait(NULL);
        cout<<"The process "<<getpid()<<" with child "<<child<<" and ancestors ";
        while(!ances.empty()){
                cout<<ances.top()<<" ";
                ances.pop();
        }
        cout<<endl;
        return 0;
}
```

"hwq2a.cpp" 29L, 486C

The code being executed is below:

```
[Cesars-MacBook-Pro:hw1 cesarvasquez$ vi hwq2a.cpp
[Cesars-MacBook-Pro:hw1 cesarvasquez$ c++ hwq2a.cpp -o hwq2a
[Cesars-MacBook-Pro:hw1 cesarvasquez$ ./hwq2a
The process 33038 with child 0 and ancestors
The process 33039 with child 0 and ancestors 31404
The process 33040 with child 0 and ancestors 31404 31404
The process 33041 with child 0 and ancestors 31404 31404 31404
The process 33042 with child 0 and ancestors 31404 31404 31404 31404
The process 33043 with child 0 and ancestors 31404 31404 31404 31404 31404
The process 33044 with child 0 and ancestors 31404 31404 31404 31404 31404 31404
The process 33045 with child 0 and ancestors 31404 31404 31404 31404 31404 31404 31404
The process 33037 with child 0 and ancestors 31404 31404 31404 31404 31404 31404 31404 3
1404 31404 31404
The process 33046 with child 0 and ancestors 31404 31404 31404 31404 31404 31404 31404 3
1404
The process 33047 with child 0 and ancestors 31404 31404 31404 31404 31404 31404 31404 3
1404 31404
Cesars-MacBook-Pro:hw1 cesarvasquez$
```

-2b:

The picture of the code is below:

```
//Cesar Vasquez
//HW Question 2b
#include <iostream>
#include <sys/types.h>
#include <unistd.h>

using namespace std;

int main(){
        int p = 10;
        pid_t child;

        for(int i =0; i < p; ++i){
                if((child == fork()) <= 0)
                        break;
                        sleep(1);
        }
        cout<<"The process "<<getpid()<<" with parent "<<getppid()<<endl;
        return 0;
}
```
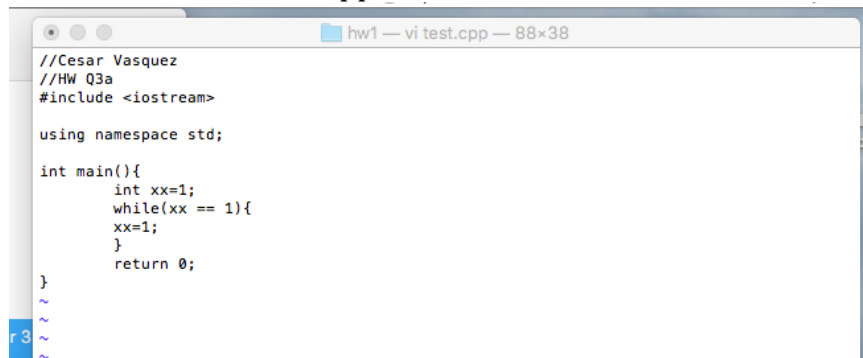
The code is being executed:

```
[Cesars-MacBook-Pro:hw1 cesarvasquez$ vi hwq2b.cpp
[Cesars-MacBook-Pro:hw1 cesarvasquez$ c++ hwq2b.cpp -o hwq2b
[Cesars-MacBook-Pro:hw1 cesarvasquez$ ./hwq2b
The process 33667 with parent 31404
Cesars-MacBook-Pro:hw1 cesarvasquez$ The process 33668 with parent 1
The process 33671 with parent 1
The process 33672 with parent 1
The process 33676 with parent 1
The process 33677 with parent 1
The process 33680 with parent 1
The process 33681 with parent 1
The process 33684 with parent 1
The process 33687 with parent 1
The process 33688 with parent 1

Cesars-MacBook-Pro:hw1 cesarvasquez$
```

-Question 3:
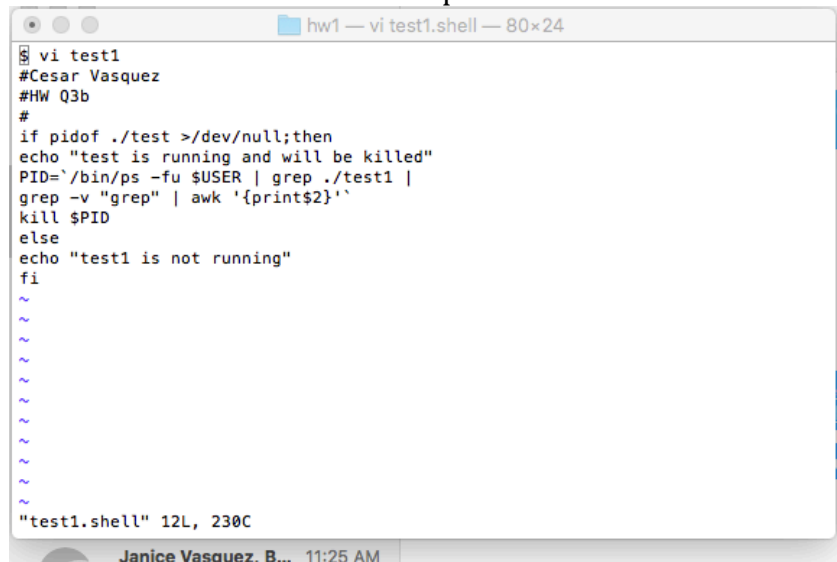-3a: Screen shot of the .cpp code:

```
hw1 — vi test.cpp — 88×38

//Cesar Vasquez
//HW Q3a
#include <iostream>

using namespace std;

int main(){
        int xx=1;
        while(xx == 1){
        xx=1;
        }
        return 0;
}
~
~
~
~
~
```
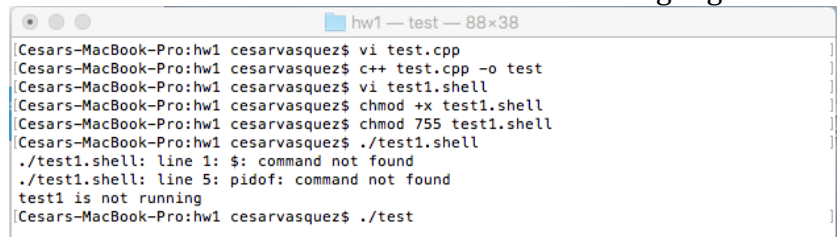
-3b: Screen shot of the shell script code:

```
hw1 — vi test1.shell — 80×24

$ vi test1
#Cesar Vasquez
#HW Q3b
#
if pidof ./test >/dev/null;then
echo "test is running and will be killed"
PID=`/bin/ps -fu $USER | grep ./test1 |
grep -v "grep" | awk '{print$2}'`
kill $PID
else
echo "test1 is not running"
fi
~
~
~
~
~
~
~
~
~
~
~
"test1.shell" 12L, 230C
```

Janice Vasquez, B... 11:25 AM

And below is the screen shot of the code running together:

```
hw1 — test — 88×38

[Cesars-MacBook-Pro:hw1 cesarvasquez$ vi test.cpp
[Cesars-MacBook-Pro:hw1 cesarvasquez$ c++ test.cpp -o test
[Cesars-MacBook-Pro:hw1 cesarvasquez$ vi test1.shell
[Cesars-MacBook-Pro:hw1 cesarvasquez$ chmod +x test1.shell
[Cesars-MacBook-Pro:hw1 cesarvasquez$ chmod 755 test1.shell
[Cesars-MacBook-Pro:hw1 cesarvasquez$ ./test1.shell
./test1.shell: line 1: $: command not found
./test1.shell: line 5: pidof: command not found
test1 is not running
[Cesars-MacBook-Pro:hw1 cesarvasquez$ ./test
```

-Summary:
Even though this lab was very challenging and I had some help, I give my self 40/40.