



Nathan Bowhay and Scott Loveless

ScubaDude

CSS 450 Fall Final Project

Contents

User Manual	3
Introduction.....	3
Objective.....	3
Controls	3
Keyboard.....	3
Mouse.....	4
User Interface	5
Menu Bar	5
Large View/Main View.....	5
Small View/World & Camera View.....	5
Inventory Display	5
Dive Computers	6
Collectables.....	7
Store	7
Difficulty Levels.....	9
Hard	9
Easy.....	9
Design	10
Hero.....	10
Schematic Layout.....	10
Data Structure.....	11
System Evaluation.....	11
Known bugs	11
Limitations	12
Possible features to implement in the next version.....	12

User Manual

Introduction

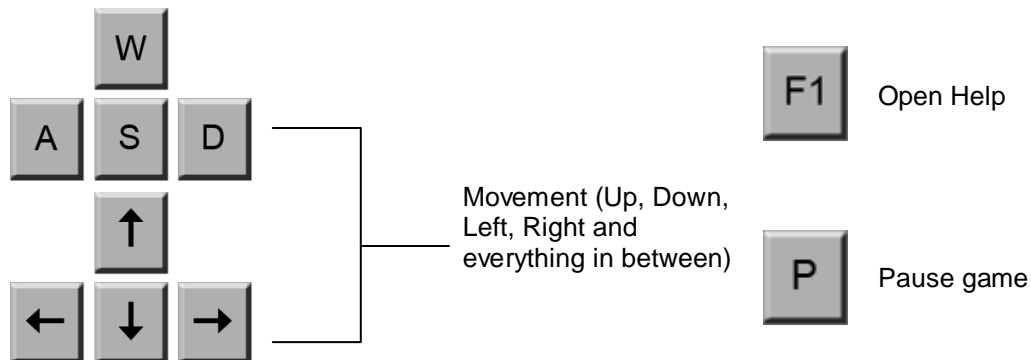
Welcome to the ScubaDude help menu. The introduction section will go over everything you need to know on how to play the game.

Objective

ScubaDude is a game in which you must dive down and collect [Treasures](#) in order to [purchase](#) upgrades or new items and eventually gain anywhere from \$750 to \$1000, depending on [Difficulty](#), to win the game. The story differs on what happened or why you need to gain the money, but the objective is the same.

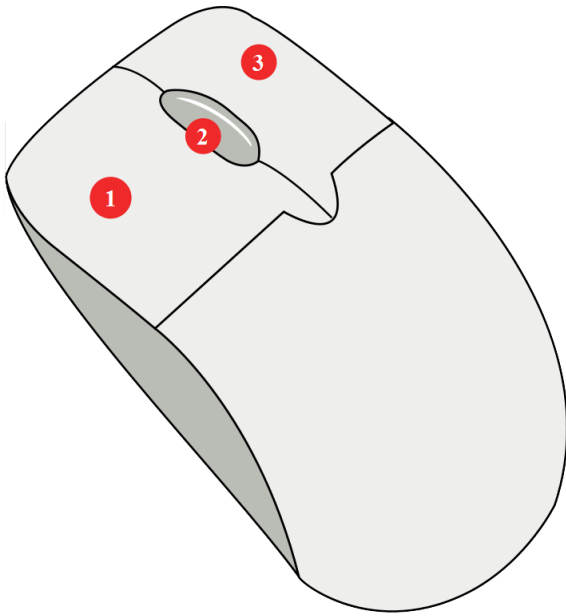
Controls

Keyboard



Mouse

In the [Large view](#) the mouse is used to aim the Hero's arm at objects. Also the following keys are used:



1. Left Mouse Button Click or Hold
 - a. [Small View](#) - Move Camera (Click & Hold)
 - b. [Large View](#) - Use equipped item (Click)
 2. Middle Mouse Button Click
 - a. [Small View](#) - Reset Camera (Move to Hero and Reset Zoom)
 3. Right Mouse Button Click or Hold
 - a. [Small View](#) - Move Camera when player isn't moving (Down & Hold)
-

User Interface

Menu Bar

The menu bar is at the very top and allows you to:

- Start a new game
- Load a saved game
- Save a game
- Quit
- View the help menu
- View the about menu

Large View/Main View

The large view is on the far left of everything and below the [Menu Bar](#). It shows a close-up view of whatever is viewable inside the Camera View in the [Small View](#). Usually the camera tracks the player automatically, but you can also take control of the camera in certain situations. In addition to providing you the ability to zoom in or out of the world, it also allows you to aim at things by moving the mouse around within it and using an equipped item by clicking the mouse. Learn more under [Controls](#).

Small View/World & Camera View

The small view is directly below the [Inventory Display](#) and the [Dive Computer](#). It shows the entire world, and shows the location and size of the camera, which is visible as a red outlined box superimposed on top of the world. You can zoom the camera in or out as well as move it around from within the Small View. Learn more under [Controls](#).

Note: You can't change anything about the camera while the player is moving. While the player is moving the camera tracks him.

Inventory Display

The Inventory display is to the right of the [Main View](#), above the [Small View](#) and to the left of the [Dive Computer](#). It is made up of 3 items:

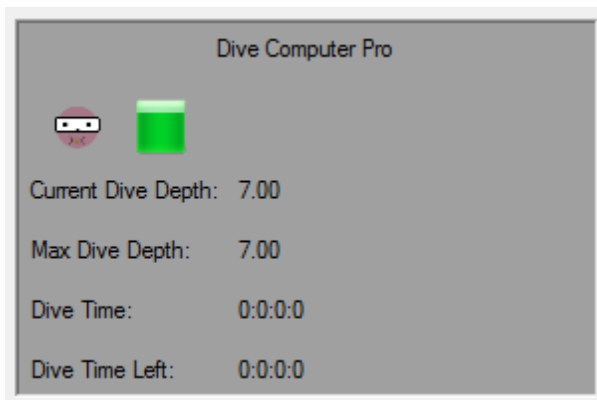
1. Money Display - The image will not change, but the value to the right of it will change as you gain or lose money based on your activity in the [Store](#).
2. Bag - Holds all of your [Collectables](#). The numbers to the right display how many collectables you have and how many you can carry (number collected / Bag Size). Clicking on the Bag button pauses the game, and brings up a display allowing you to view all the collectables in your bag at that time.
3. Equippable Items Inventory - The button image displays your currently equipped item. You can change this by clicking on the button, which will pause the game and bring up a menu allowing you to equip a different item. It will also show your currently equipped item as a pushed down button. Text to the right of the inventory button displays the name of the currently equipped item.



Dive Computers

There are two different dive computers based on your [Difficulty Level](#). The Two are Dive Computer Pro which you get on [Easy Difficulty](#) and just Dive Computer which you get on [Hard Difficulty](#).

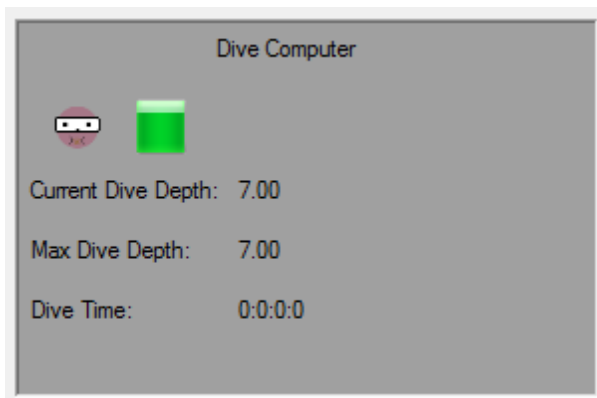
The Dive Computer Pro looks like this:



It contains:

- Air Progress Bar - Current and max amount of air
- Current Dive Depth - Current depth from water line
- Max Dive Depth - Maximum depth you have reached so far in the game
- Dive Time - Time since you were last on the surface
- Dive Time Left - Time remaining until your air runs out (at which point the player dies)

The normal Dive Computer looks like this:



It only contains:

- Air Progress Bar - Current and max amount of air
- Current Dive Depth - Current depth from water line
- Max Dive Depth - Maximum depth you have reached so far in the game
- Dive Time - Time since you were last on the surface

When you start you will just be holding your breath so you will see a person holding their breath, but after getting the air tank the it will change to a picture of the air tank and the bar will increase.

Collectables

While diving you will see treasure or collectables. In order to collect them, you simply swim into them. Each collectable varies in worth and every time you visit the [Store](#) there is a chance it could be worth more or less. Depending on your [Difficulty Level](#) you can see the condition (Mint, Good, Fair, Poor) of the item in the [Bag](#) menu to help get an idea of the range you may get when selling it.

After collecting a collectable it will be in your [Bag](#) which can be viewed by clicking the button that looks like this:

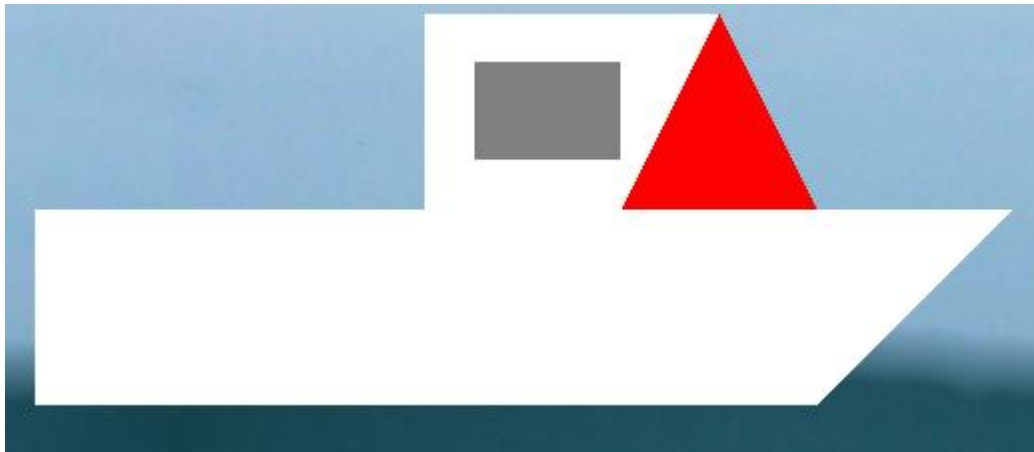


The text next to the button shows how many collectables you have and how many you can carry (number collected / Bag Size). If your bag is full then when you swim into a collectable, you will not pick it up.

Store

After gathering several [Collectables](#) you will want to return to the store to sell them.

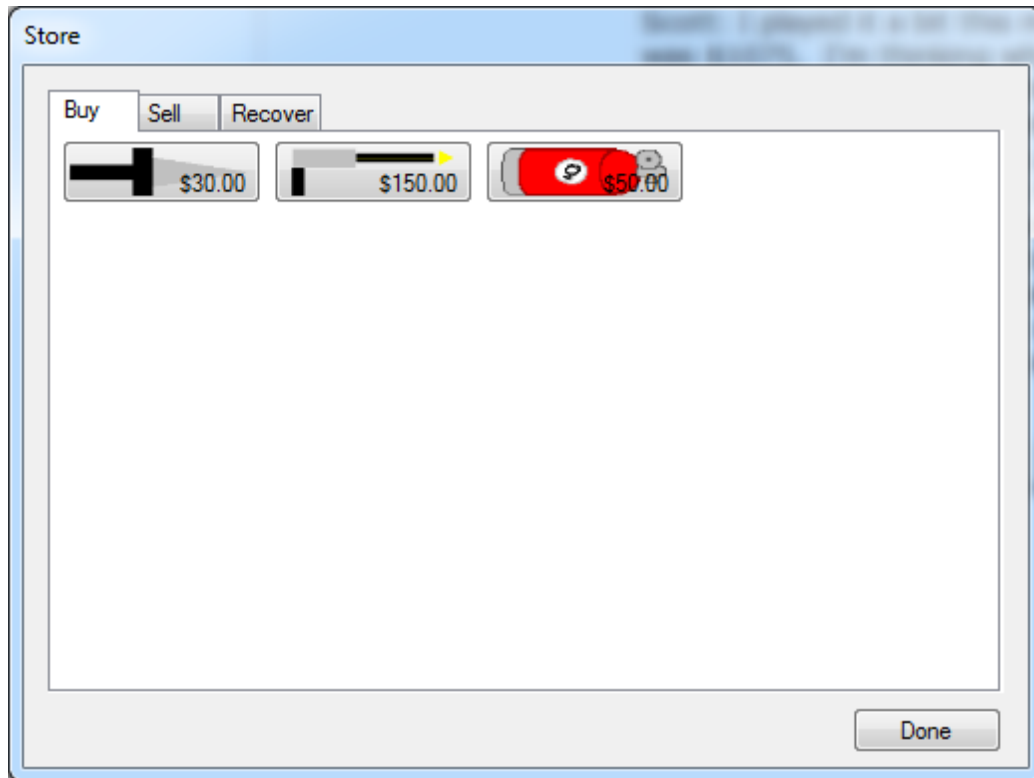
The store looks like a boat and is near the middle at the top of the water.



Once you collide with it, it will pause the game and bring up the store menu, where you can perform tasks such as:

- Buy Items - These are either new items you can equip or upgrades to something you have now. For instance, you start with a certain amount of air (how long you can hold your breath) and can purchase an upgrade to an Air Tank.
- Sell [Collectables](#) - This is where you can sell all the [Treasures](#) or [Collectables](#) you gathered throughout the level.

- Recover - These are things you can recover or gain more of. For instance after gaining an Air Tank you will need to recover the air for it by purchasing that recovery item. Or your Spear Gun will run out of spears, which you can buy more of here.



You can perform an action by going to the appropriate tab and clicking on the button for that task. It will then deduct/add the amount of money listed on the button, display a message if you don't have enough money, and then perform the task. When Selling or Recovering you will see 'Sell All' or 'Recover All' buttons. These will perform the given action for all items.

After you are done doing what you want to do in the store, click 'Done', and the game will resume and you can continue playing.

Difficulty Levels

There are two difficulty levels: Hard and Easy. When you start a new game you will be prompted if you want to set the difficulty to hard. You can then choose yes or no. If you choose yes it will be set to hard and if you choose no it will be set to easy.

Hard

The first thing that changes on hard is you don't have the [Dive Computer Pro](#) you have the [Dive Computer](#).

There are other changes as well though including, but not limited to:

- Maximum of 9 sharks in the world at any one time.
- Sharks can enter the world much closer to the hero than in easy mode (in easy mode there is a shark-buffer that prevents them from entering too close to the hero).
- Can NOT see the quality of an item to be able to estimate how much it may be worth.

Easy

The first thing that you will notice is you have the [Dive Computer Pro](#).

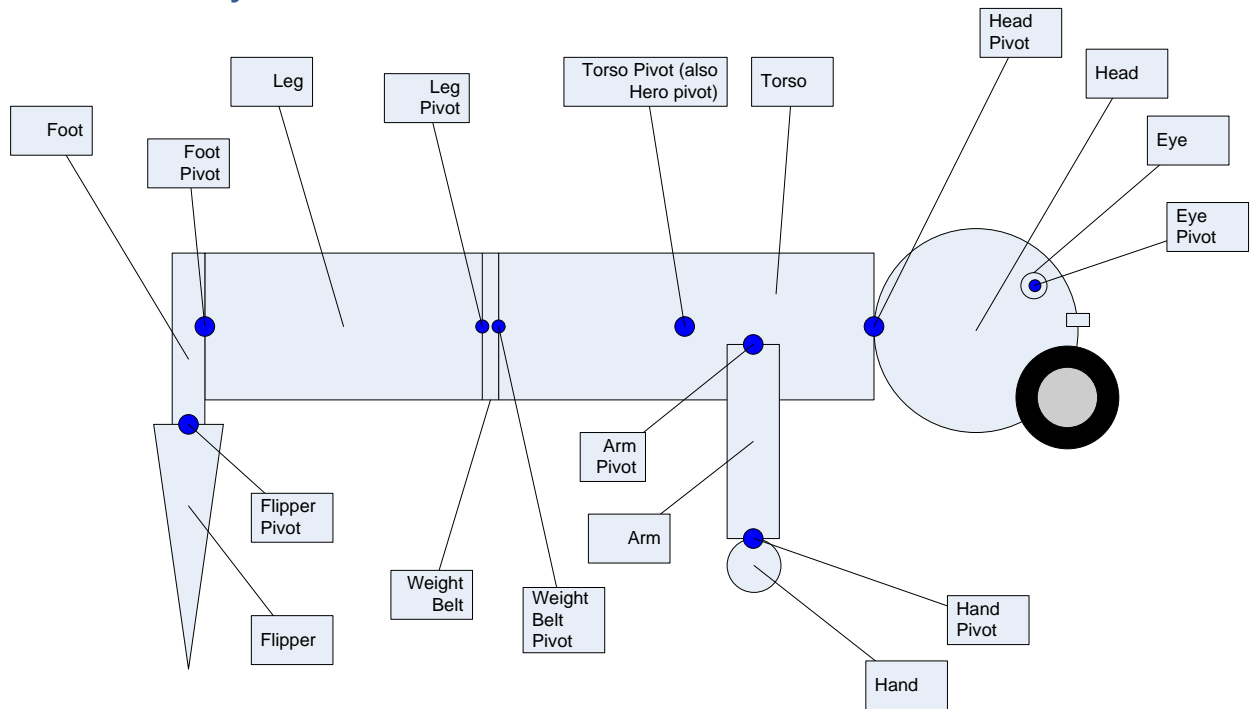
There are other changes as well though including, but not limited to:

- Maximum of 3 sharks in the world at any one time.
- Can see the quality of an item to be able to estimate how much it may be worth.

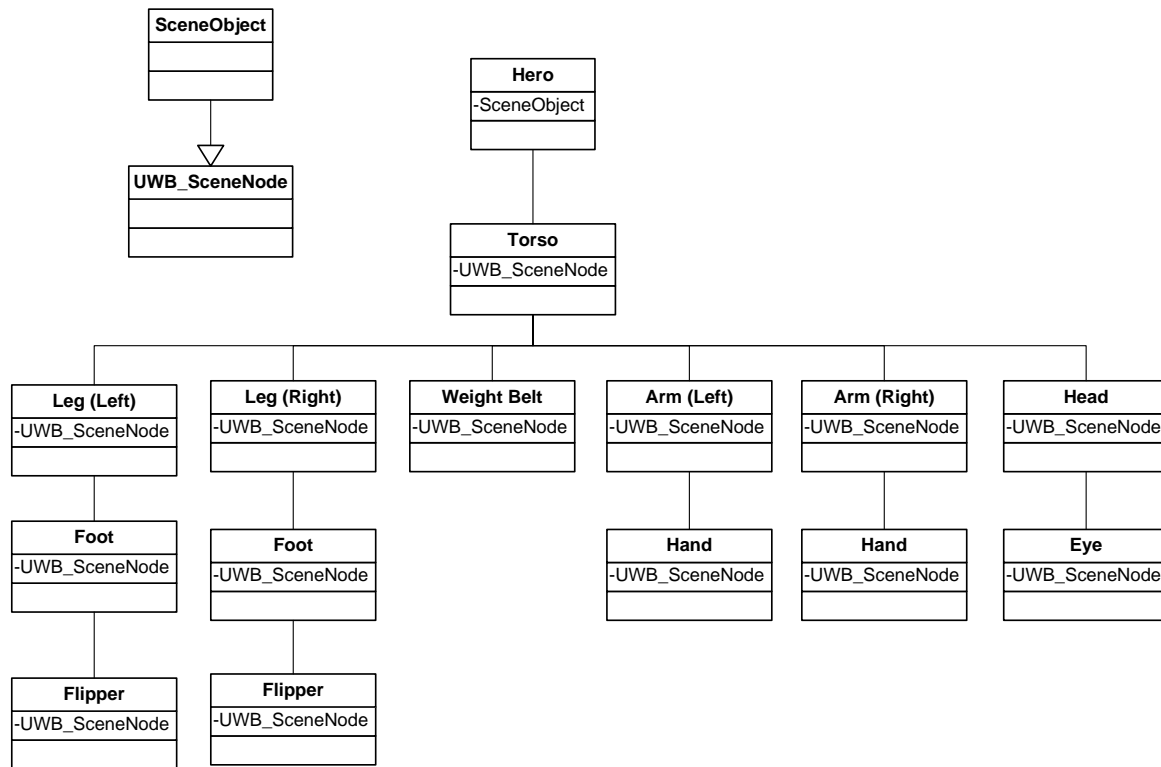
Design

Hero

Schematic Layout



Data Structure



System Evaluation

Known bugs

- Every so often, when swimming straight down, something will cause the hero to do a 180, with his head facing up, even though he continues to go down, both with just inertia and also if you keep the down button pressed when this happens.
- On save, projectile positions are being updated in the background before writing the XML, so if you had a spear you just shot from the upper-left of the screen towards the lower-right, if you look at the spear's position in the XML, it's way down at the lower right already, so when you load up the game again, there are no spears on-screen (they appear in the collection, but are removed after the first update because they are outside of the world bounds).
- When you look at what's in Scuba Dude's bag when you're not in the store, if there are more than 3 items, the buttons run off the right side of the window, and likewise when you have lots of items to sell. It probably will occur in the purchase and recover menu as well or in you equippable items inventory, since they all share the same code.
- If you open several menus that pause the game and then un-pause it when they close, after closing the first one the game will un-pause.
- Every once in a while the inventory button will show an image even though nothing is equipped.

Limitations

We had very high ambitions for Scuba Dude, and pursued a very aggressive schedule with more features planned than we were able to complete in the timeframe. As we took time to resolve bugs and fix gameplay issues with what we did have implemented already, we had to cut some planned items out, such as:

- A bubble particle system
- We had wanted many other types of fish and sea creatures to populate Scuba Dude's world.
- We planned to have a headlamp available to purchase that would unlock night diving where only what he shines his light on is illuminated.
- We currently have several animations, but we wanted to refine these and add many more.
- Scuba Dude currently uses about 5 sounds, but we had planned for much more than that.
- We also planned on texturing many more objects than we did.

Possible features to implement in the next version

All the items that dropped off our feature list (above) would be a good place to start, but in addition to that:

- End Game – There are the beginnings of an end game, but it isn't quite there. You have a plane ticket and it says you won, but we would add more of an ending to it then you won. For instance once you buy the ticket, it should show the hero in the back of the boat just standing there, as the boat moves off screen to the right. We could even potentially show an airplane in the background after the boat disappears, and play a sound of a guy saying, "Mommy!" in a high voice or something along those lines.
- More gruesome hero death - when the hero is eaten by a shark, the shark's teeth should turn red, and the hero should lose random body parts so he looks all mangled...maybe even rotate his arms and legs (that are left) into weird random angles.
- Beginning and end game animations so you see a bit of the story rather than only read it.
- More items to purchase and more things to upgrade.
- More collectables than just coins
- More advanced buying selling algorithm that takes time into consideration (currently when you sell items it is a different price every time you come back, but you can just keep leaving and coming back).
- Refine menus so there aren't tons of pop-ups.
- Dynamically created world. Although the sharks or dynamically created, we also would like to have the entire world dynamically created, so you could continue to dive deeper and see different things. Or move left or right and see different things. This includes obstacles, background, collectables you can grab. Once you entered an area and it was created however it would not change once you came back to it.

- Level editor/Object editor – If you compile in debug mode you will notice 2 extra guis show up, a drop down menu off all scene nodes in the scene and a object editor button. We would like to elaborate on this editor. Like add control of the simple animation system that is already in. More object editing support, export and import of objects things like that to make development easier.