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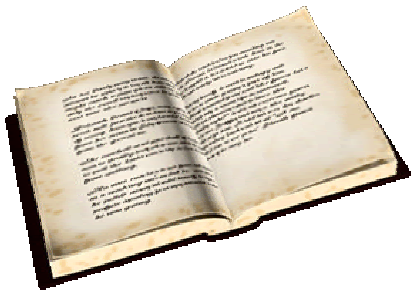
FLASH BOOK RESEARCH

OVERVIEW:

--- WHAT'S THE BIG IDEA?



The concept behind this project was to allow users and visitors to my website the chance to design a virtual book by FlashMX, just like the real book, but on your computer desktop. You can read it one page after another.

Attention, this course is for those who already have some idea about ActionScriopt or know how to coding in Flash MX. If you only know how to create a ball and run it all over the desktop, please come back couple of months later.

Just kidding. Basically, there are less technical skills in this course. Almost all the functions in this tutorial is been frequently used. The coding is pretty easy, what you need to know is some basic trigonometry knowledge, such as sine, cosec, and hypotenuse. Those are enough for this tutorial. So, take it easy and enjoy it.

This is an ongoing project.

If you have any questions, please do not hesitate to e-mail.

Let's star our trip.

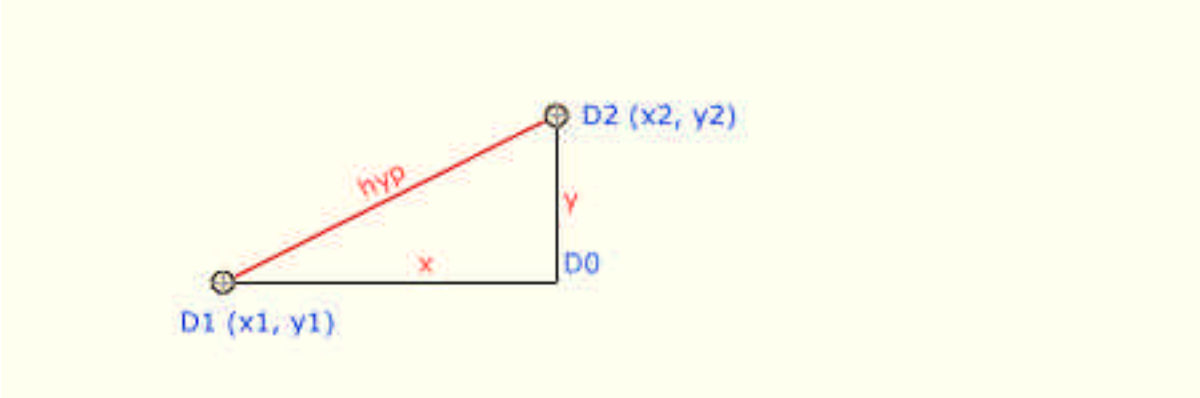
SECTION ONE:

--- BASIC CALCULATION FUNCTIONS:

We have two basic calculation functions in the root script. You can copy them to your stage directly because we will use them again and again in the future. One is getDist and another is getAngle. They are pretty easy for you, right? Frankly, I just have no interesting to explain this kind of stuff, which we should learn in the math class of high school. ☹

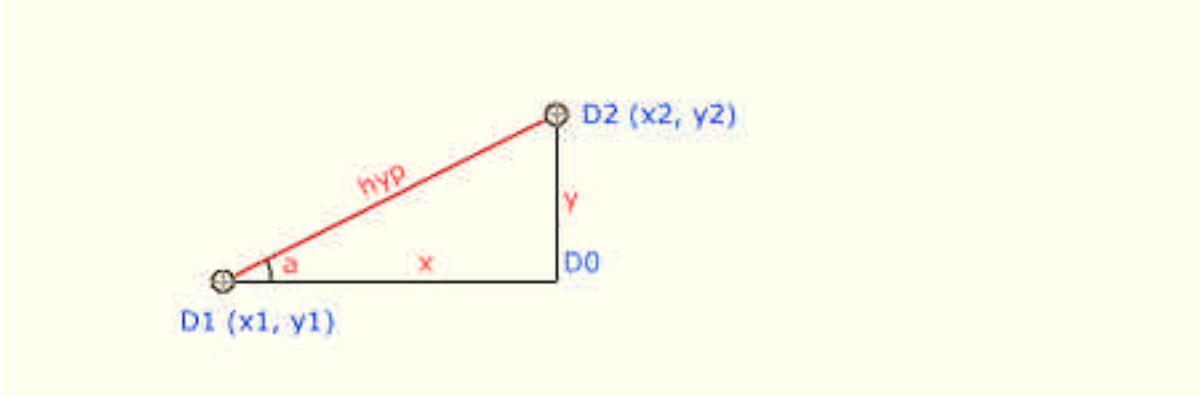
The first one is getting the distance between two points. We need know the coordinates of these two points.

```
// Get the distance between two points.
function getDist(px1, py1, px2, py2){
x = px2 - px1;
y = py2 - py1;

hyp = Math.sqrt(Math.pow(x,2) + Math.pow(y,2));

return hyp;
}
```



Ok, then, you already go far enough. We can try something harder now. --- How to get the angle between two points.

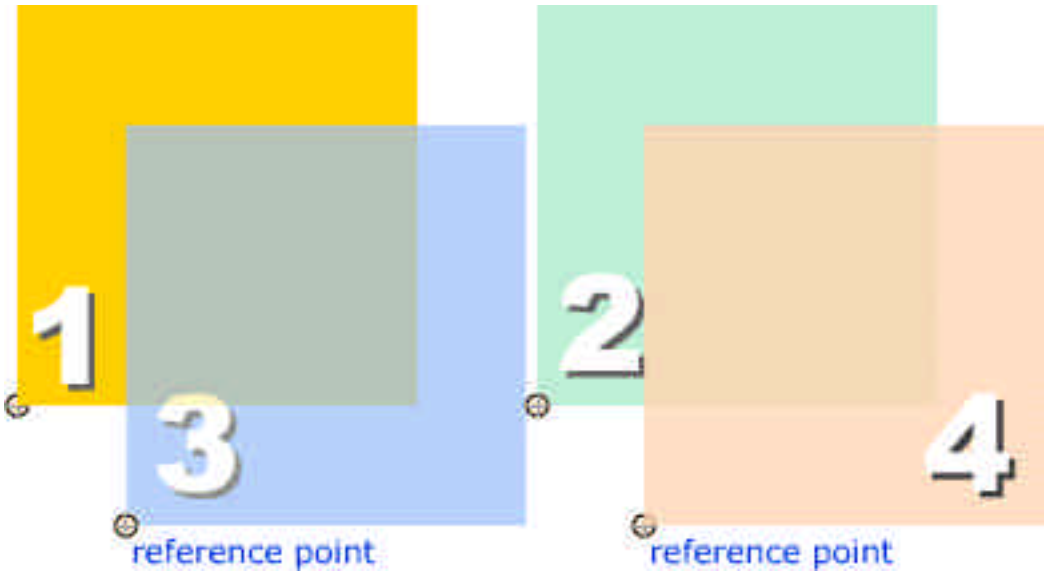
```
// Get the angle between two points.
function getAngle(px1, py1, px2, py2){
x = px2 - px1;
y = py2 - py1;

hyp = Math.sqrt(Math.pow(x,2) + Math.pow(y,2));

cos = x / hyp;
rad = Math.acos(cos);
// Ask your math teacher if you don't understand this one.

deg = 180/(Math.PI / rad);
// Yes, we do got one angle, rad, by 'Math.acos(cos)', but in radians.
// Therefore, we need do one more step to transfer it to normal angle we need.

if(y <0){deg = -deg;}
else if((y == 0) && (x <0)){deg = 180;}

return deg;
}
```



Do I need explain more?

SECTION TWO:
--- BASIC MOVIE CLIPS IN THE STAGE

1.Create 4 square symbols in you library. They are the different pages in your book. If you like, you can redesign them following your requirement. The only thing I need mention you is put the reference point to the left bottom corner of each symbol, we need use them to find the position of pages.

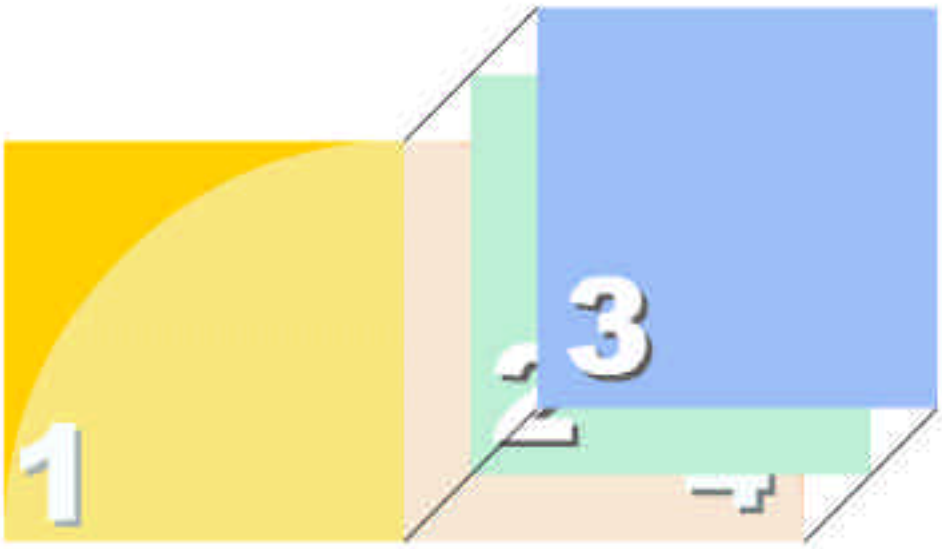


In this demo case, we assume our book just have 4 pages. If you want your book have more, then add some new check situation function yourself, please. Make sure the page's size is matching the book.

Drag them to you stage and make sure they are in the different depth.
Following this order: Page4, Page1, Page2 and Page3

The Page3 should be on the top level.

Make sure you put these movie clips the same as following picture.



The location of page3 is really doesn't matter, because we need change it dynamically in the future.

2. Create one circle symbol and cut. We need it to check the different situation when our mouse moving.

3. Create one symbol which include one dot, This one is totally up to you, you can use any style for you dot sign.

Put dot symbol in the stage 5 times and named them asD0, D1, D2, D3 and D4.

What I need mention you is DO NOT put any movie clip outside the area that movie clip Page1 and Page4 made.

4. We need some other symbols as shadow or something in the future, we can create them later, don't worry.

Again, The symbols list in you library is:
s_circle, s_dot, s_page1, s_page2, s_page3, s_page4

The movie clips on you stage are:
checkcircle, D0, D1, D2, D3, D4, page1, page2, page3, page4

Select all the movie clips on the stage and convert them to one symbol s_stage.
Drag s_stage to the stage and named it movie clip 'stage'.

Make sure movie clip D0 is located at the center of the Stage.

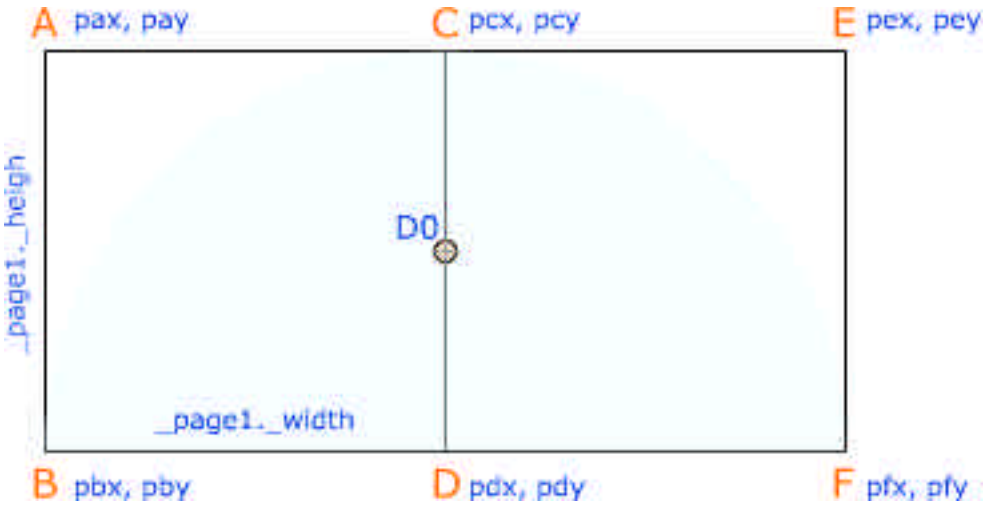
And make sure the size of movie clip Stage is Page1 plus Page4.
That is why do not put any movie clip outside this area when you convert symbol s_stage.

Basically, movie clips D0 to D4 are made just for clear to find the reference points. When we finish this tutorial, you can set the transparency of these movie clips as 0. That's what I did here.

We can code at the following course now.

SECTION THREE:
--- INITIALIZATION:

Initialize all the variables as following.




```
// Set the book's width and height.
stageW = _root.stage._width;
stageH = _root.stage._height;

// Set reference points' position
pax=_root.stage.d0._x - stageW/2;
pay=_root.stage.d0._y - stageH/2;

pbx=_root.stage.d0._x - stageW/2;
pby=_root.stage.d0._y + stageH/2;

pcx=_root.stage.d0._x;
pcy=_root.stage.d0._y - stageH/2;

pdx=_root.stage.d0._x;
pdy=_root.stage.d0._y + stageH/2;

pex=_root.stage.d0._x + stageW/2;
pey=_root.stage.d0._y - stageH/2;

pfx=_root.stage.d0._x + stageW/2;
pfy=_root.stage.d0._y + stageH/2;

_root.stage.page3._alpha = 0;
// We need show movie clip Page2 at the beginning, so hide Page3 first.
```

Put this part coding in your first root frame script.

--- HOW TO FIND THE FIRST POINT?

The first point, D1, is your mouse's position. (Frankly, there are several situations on D1's position. Suppose you mouse is out of the MC circle, what will happen? You can finish

this part later. Mine is done. It's your homework now.)

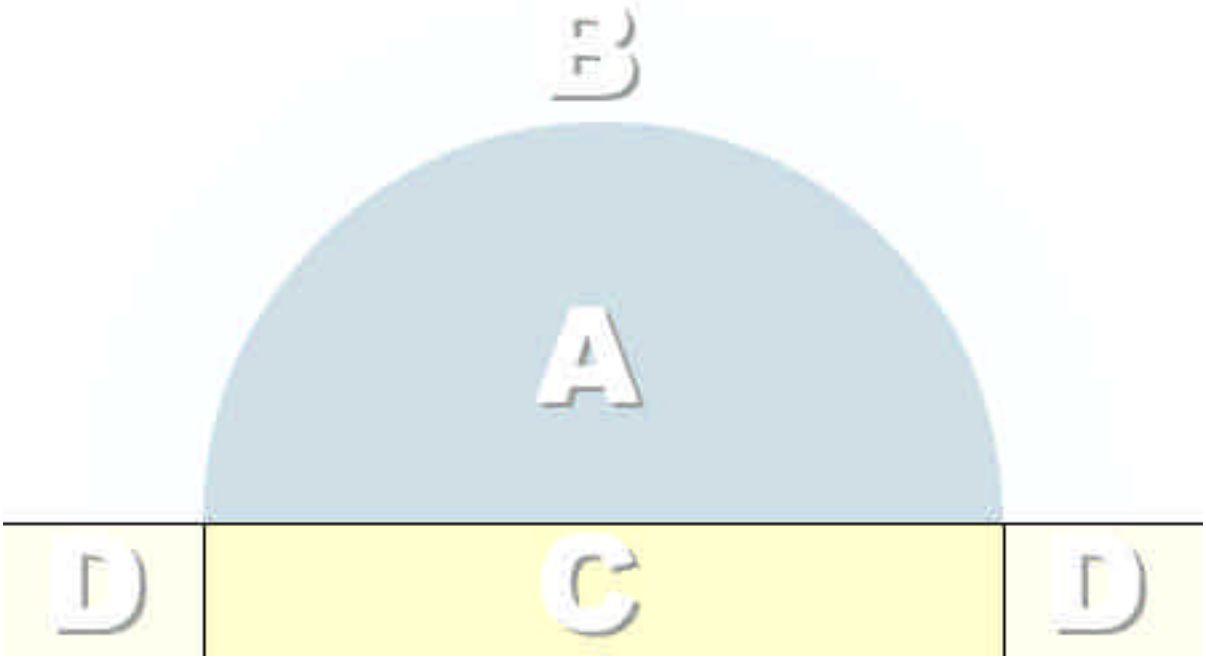
Before set the value of D1's position, we need one main function first.

```
// The main function.
function startSlip(){

getD1(); // This function is the one what we need discuss in this course.

getD234();
DrewMask(); // We will add these two functions later.
}
```

Now you can check out how to set D1 now.

```
// Get the first point, D1's position.
function getD1(){
if (_root.stage.checkcircle.hittest(_xmouse, _ymouse, true)) {

_root.stage.d1._x = _root.stage._xmouse;
_root.stage.d1._y = _root.stage._ymouse;

}else{
// Finish this part yourself. Basically, I have 3 more functions to set the D1's position.
}
}
```

HINT: Your mouse has 4 areas to go and in each of them the D1's position is different. In this case, we just discuss areas A. I will leave all the coding in the final fla file. If you are interested, check it later.



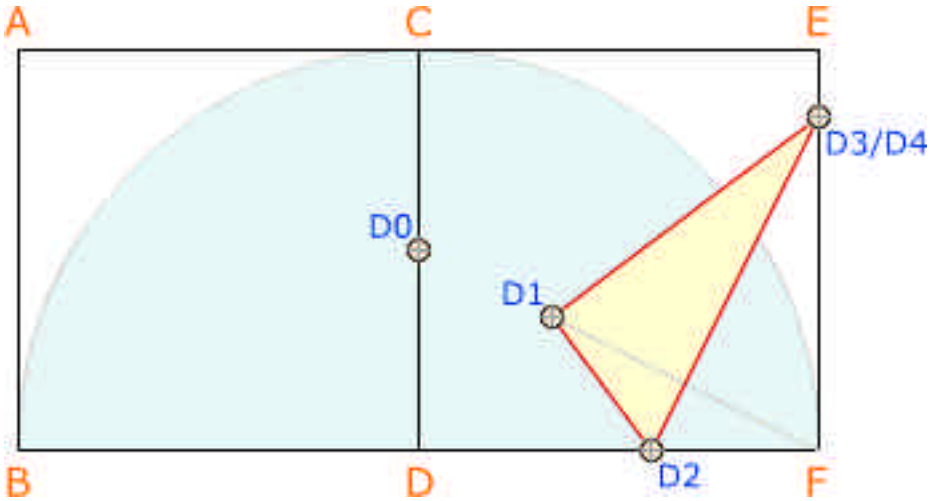
Because using mouse hold to drag the page, the first point you need to move is the right bottom corner point of the page.

Great, we have three more points to get, be patient!

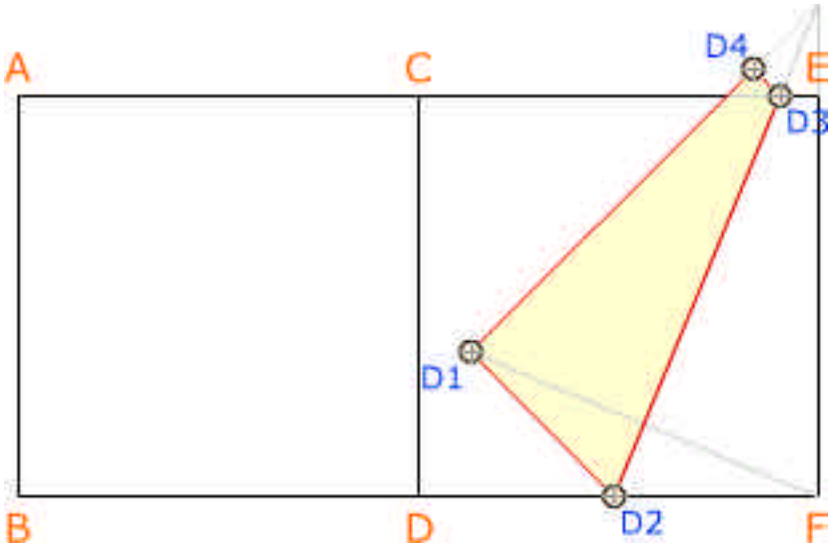
SECTION FOUR:
--- GET ALL THE OTHER POINTS:

Again, you have several situations to take care.

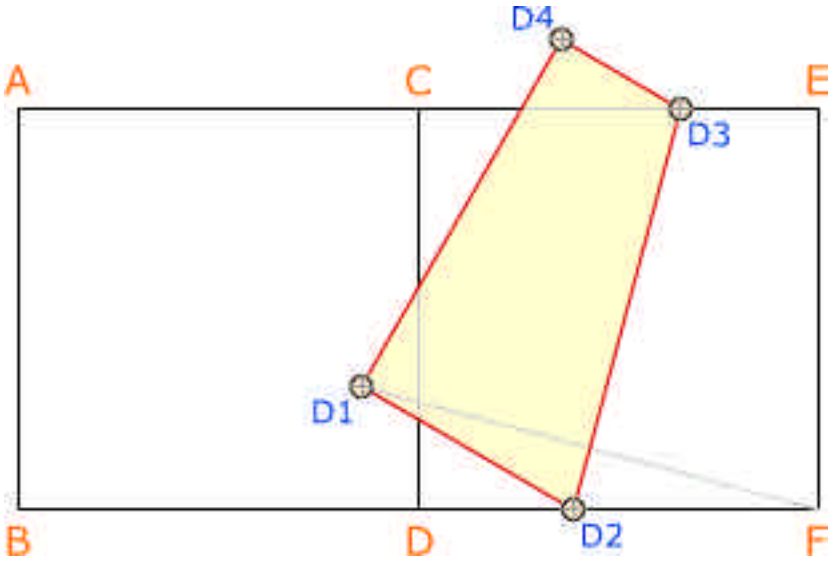
The first one is kind of easy. Point D3 is located on edge EF. In this situation, point D4 is at the same location of D3.



Another one is little harder. Point D3 is located on edge CE. You need calculate both of D3 and D4.



Or:



Here, we need some trigonometric functions to get all the values. Hey. There is probably a more efficient way to make this whole code work. I'm certainly no interest to do it again. ☹

The only thing that I need mention you is
Flash coordinates start in the top left corner and increase down to the right.

It's probably obvious to a mathematician to get all the points in couple of minutes. But it takes me one whole morning to do that.

If you want, you can do it yourself, or just copy these coding.

```
// Using point D1 and Point F find all the other points.
function getD234(){

len = _root._root.getDist(pfx, pfy, _root.stage.d1._x, _root.stage.d1._y);
len1 = len/2;
len2 = (pfx - _root.stage.d1._x)/2;

_root.stage.d2._x = pfx - len1*len1/len2;
_root.stage.d2._y = pfy;

len2 = (pfy - _root.stage.d1._y)/2;
len3 = len1*len1/len2;

_root.stage.d3._x = pfx;
_root.stage.d3._y = pfy - len3;

// Check out weather point D4 is at the same location of point D3.
if (_root.stage.d3._y < pey){
ptx = pex - (pfx - _root.stage.d2._x)*(pey - _root.stage.d3._y)/len3;
pty = pey;

len = _root.getDist(_root.stage.d3._x, _root.stage.d3._y, ptx, pty);
len1 = (pex - ptx)*(pey - _root.stage.d3._y)/len;

len2 = len1*len1/(pex - ptx);
_root.stage.d4._x = pex - len2*2;

len2 = len1*len1/(pey - _root.stage.d3._y);
_root.stage.d4._y = pey - len2*2;

_root.stage.d3._x = ptx;
_root.stage.d3._y = pty;

}else{
_root.stage.d4._x = _root.stage.d3._x;
_root.stage.d4._y = _root.stage.d3._y;
}
}
```

Wow... We are almost there now. Go!

SECTION FIVE:
--- DRAW THE MASK SHAPE

There are only two special points you need know. One is creating one empty movie clip and draw something in it. Another is masking one movie clip by another one dynamic.

Ok, Let's coding.

```
// Create masking movie clip
function drawMask(){

_root.stage.createEmptyMovieClip ("triangle", 1);
with (_root.stage.triangle) {
colors = [ 0xEFEFEF, 0xFFFFFF ];
alphas = [ 100, 100 ];
ratios = [ 0, 0xFF ];
matrix = { a:200, b:0, c:0, d:0, e:200, f:0, g:200, h:200, i:1 };

beginGradientFill( "linear", colors, alphas, ratios, matrix );

moveTo (_root.stage.d1._x, _root.stage.d1._y);
lineTo (_root.stage.d2._x, _root.stage.d2._y);
lineTo (_root.stage.d3._x, _root.stage.d3._y);
lineTo (_root.stage.d4._x, _root.stage.d4._y);
lineTo (_root.stage.d1._x, _root.stage.d1._y);

endFill();
// I don't think I need explain this part. You can find them in the help or reference of
Flash MX. I copied them from there. ☺

// Pretty clear, right?
}

setPage3();
// We need move and rotate movie clip Page3 with your mouse move. That is why we
need this function here.

_root.stage.page3.setMask(_root.stage.triangle);

}
```

There is one more function we need know, setMask.

Personally, I think this setMask function has some small bugs when you use. It does not work as well as other functions.
Another thing I need mention you is you only can use setMask once in the same level script which is mean if you want to setMask movie clip Page2 at the same time, you need create new mask movie clip and setMask it in the different script level.

Hard to understand? Ok, in my case, I put the next setMask inside the movie clip Page2.

```
// Move and rotate movie clip Page3
function setPage3(){

_root.stage.page3._x = _root.stage.d1._x;
_root.stage.page3._y = _root.stage.d1._y;

angle = _root.getAngle(_root.stage.stage.d1._x, _root.stage.stage.d1._y,
_root.stage.stage.d4._x, _root.stage.stage.d4._y);
_root.stage.page3._rotation = angle + 90;
//Why add 90 degree here? I don't know. I just found that the numbers worked perfectly
only by adding that in there.

_root.stage.page3._alpha = 100;
// Remember we initialize movie clip Page3's alpha as 0? Now we need switch it back.
Because movie clip Page2 is on the under level of Page3.
}
```

Add one more line coding in this course.
In the movie clip Stage:

```
onClipEvent (enterFrame) {
_root.startSlip();
}
```

This paragraph coding make Flash keep trying checking the mouse's position.

SECTION SIX:
--- DRAW THE MASK SHAPE IN PAGE2

Create one new movie clip named Page2_content inside movie clip Page2.
Whatever you want.

And add under coding inside the new movie clip Page2_content.

Basically, just like we discussed at last course, you cannot use more than once setMask at the same level script. That is why need use it again in the movie clip Page2.

These coding is for show the bottom movie clip Page4.

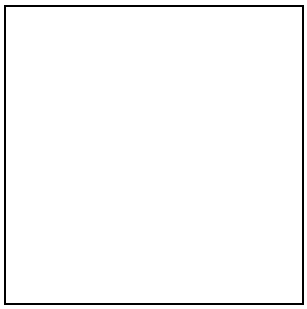
```
// Inside movie clip Page2_content.
onClipEvent (enterFrame) {

_parent.createEmptyMovieClip ("triangle2", 1);
```

```
_root.stage.page2.page2_content.setMask (_parent.triangle2);

with (_parent.triangle2) {

colors = [ 0xEFEFEF, 0xFFFFFF ];
alphas = [ 0, 0 ];
ratios = [ 0, 0xFF ];
matrix = { a:200, b:0, c:0, d:0, e:200, f:0, g:200, h:200, i:1 };
beginGradientFill( "linear", colors, alphas, ratios, matrix );

moveTo (_root.pdx , _root.pdy - _root.stageH/2);
lineTo (_root.stage.d2._x, _root.stage.d2._y - _root.stageH/2);
lineTo (_root.stage.d3._x, _root.stage.d3._y - _root.stageH/2);
lineTo (_root.pex, _root.pey - _root.stageH/2);
lineTo (_root.pcx, _root.pcy - _root.stageH/2);
lineTo (_root.pdx, _root.pdy - _root.stageH/2);

endFill();
}
}
```

Check out what you have got now. Pretty cool, right?

SUMMARY

--- SOME OTHER THINGS YOU NEED ADD:



Here, we already go far enough. But, of course, we need some more to make it looks like one really book.

We need add some shadow movie clip. I used png file to make the transparency effect. And, sure it will move and rotate with Page3 together. Those coding are kinds of the same. The angle is a little different, because the axis is no longer edge D1 D4 but edge D2 D3 now.

Another thing is you need add one more function to check out how the page back or next. In my final version, I used mouse release function.

Basically, there is one little hard step in the future is how to check the first page and the end page. If not including those, you cannot try more pages.

I have no power and pretty hungry now. The last things are all you guys' homework. ☺

Good luck.

View my final version at
http://oa-s138-02.sheridanc.on.ca/imm/flash/tutorial/stuff/final.html