

CS 105

What Will We Do Today?

Run an Experiment (All of us!)

Meet two special characters

Cheat on the Exam. Big Time!

Experience Randomness

iClicker Experiment

iClicker Experiment

Throughout the lecture, update me
on how you're doing

iClicker Experiment

Throughout the lecture, update me
on how you're doing

A "I'm really happy right now. This is easy"

B "That totally makes sense when I think about it"

C "This is challenging, but I can do it"

D "I am pretty confused"

E "I really wish I weren't here right now"

Meet the Asterisk

Meet the Asterisk

No, not that guy



That's Asterix

Meet the Asterisk

That guy



Meet the Asterisk

So what does * mean

Meet the Asterisk

So what does * mean

Anything, really

Meet the Asterisk

So what does * mean

Anything, really

Actually more like Anythings

Anythings ? Really ?

Anythings ? Really ?

An * can be any character

Anythings ? Really ?

An * can be any character

That's why we call it a wildcard

Anythings ? Really ?

An * can be any character

Or any string of such characters

Anythings ? Really ?

An * can be any character

Or any string of such characters

Even one of length zero

So.....

So.....

	A
1	apple
2	airline
3	anecdote

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a*e")

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a*e")

3

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a*e")

3

=COUNTIF(A1:A3,"air*ine")

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a*e")

3

=COUNTIF(A1:A3,"air*ine")

1

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a*e")

3

=COUNTIF(A1:A3,"air*ine")

1

=COUNTIF(A1:A3,"appl*e")

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a*e")

3

=COUNTIF(A1:A3,"air*ine")

1

=COUNTIF(A1:A3,"appl*e")

1

One More Wildcard

One More Wildcard

?

How is ? Different

How is ? Different

It represents exactly one character

So.....

	A
1	apple
2	airline
3	anecdote

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a?e")

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a?e")

0

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a?e")

0

=COUNTIF(A1:A3,"air?ine")

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a?e")

0

=COUNTIF(A1:A3,"air?ine")

1

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a?e")

0

=COUNTIF(A1:A3,"air?ine")

1

=COUNTIF(A1:A3,"appl?e")

So.....

	A
1	apple
2	airline
3	anecdote

=COUNTIF(A1:A3,"a?e")

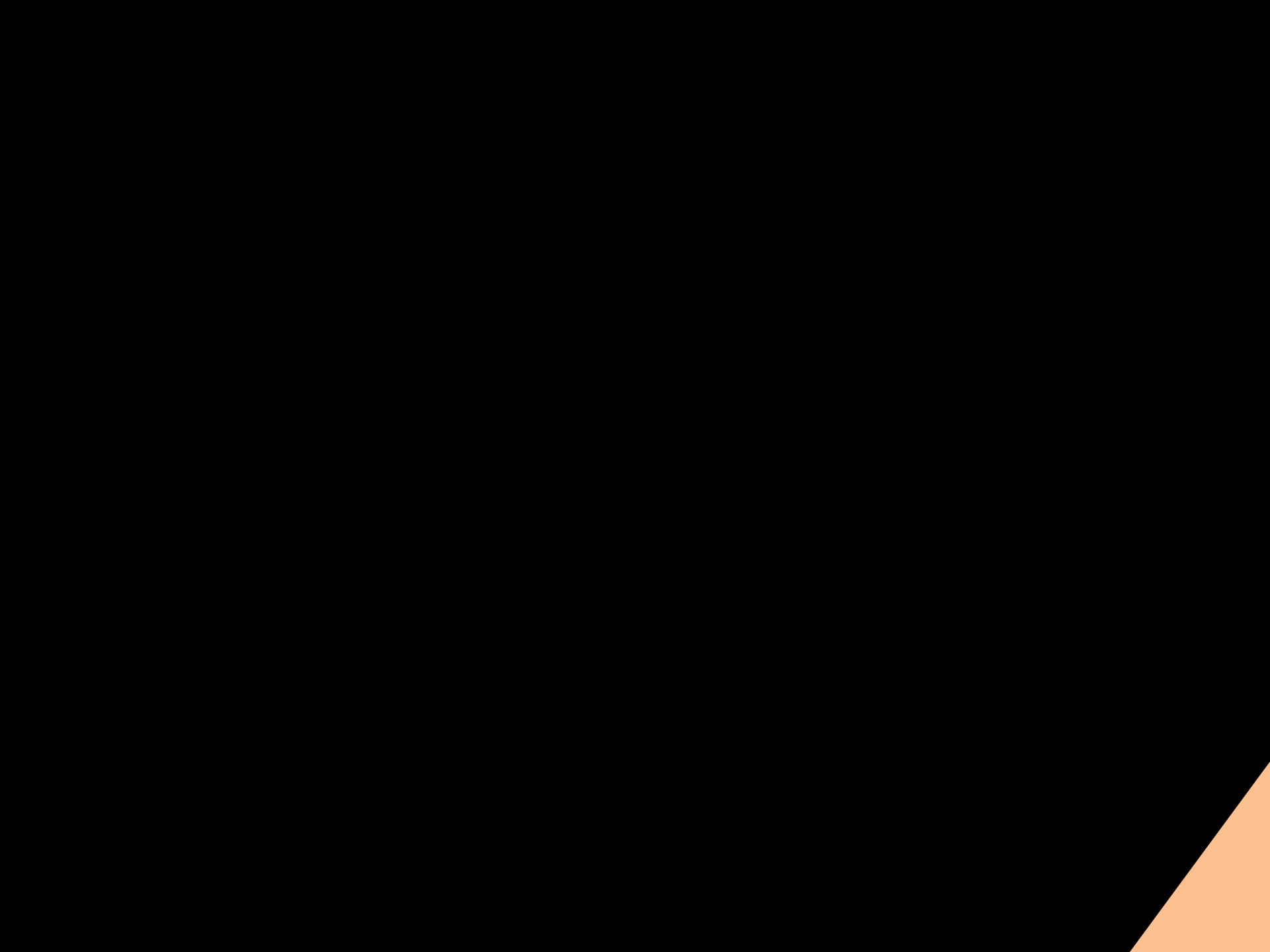
0

=COUNTIF(A1:A3,"air?ine")

1

=COUNTIF(A1:A3,"appl?e")

0



To Cheat or Not To Cheat

To Cheat or Not To Cheat

An entirely hypothetical scenario

To Cheat or Not To Cheat

An entirely hypothetical scenario

Imagine you are taking an
Intro to Computer Science
course at Mt. Random College

Mt. Random's Syllabus

Mt. Random's Syllabus

There will be five exams

Mt. Random's Syllabus

Each of your five exams will have

Mt. Random's Syllabus

Each of your five exams will have

Seven Questions for 10 points each

One Questions for 20 points

Two questions for 30 points each

Total: 150 points

That's a lot of work!

That's a lot of work!

Is there an easier way?

That's a lot of work!

Is there an easier way?

If you study a lot, you will probably
get a perfect score on every
question

That's a lot of work!

Is there an easier way?

If you don't study,
you'll likely get 0 points on
every question

That's a lot of work!

Unless.....

That's a lot of work!

Unless.....

If you decide to cheat, you might
get all the points for free...

That's a lot of work!

Unless.....

If you decide to cheat, you might
get all the points for free...

... if they don't catch you, that is

If you cheat on a question

If you cheat on a question
and get caught

If you cheat on a question

and get caught

you will fail the entire exam

If you cheat on a question

and get caught

you will fail the entire exam

otherwise

you get all the points for that
question

Let's put that into Excel

How Random

`=RAND()`

How Random

=RAND()

returns a pseudo-random value

How Random

=RAND()

returns a pseudo-random value

$0 \leq \text{RAND} \leq 1$

In the Real World

In the Real World

we often need whole numbers

In the Real World

we often need whole numbers

=ROUND(RAND(),0)

In the Real World

we often need whole numbers

=ROUND(RAND(),0)

Either 0 or 1

Sometimes One Isn't Enough

Sometimes One Isn't Enough

What if you have four choices?

Sometimes One Isn't Enough

What if you have four choices?

Like North, East, South or West

Sometimes One Isn't Enough

What if you have four choices?

Like North, East, South or West

`=ROUND(3*RAND(),0)`

Sometimes One Isn't Enough

What if you have four choices?

Like North, East, South or West

`=ROUND(3*RAND(),0)`

Uh, Why 3?



Sometimes One Isn't Enough

What if you have four choices?

Like North, East, South or West

`=ROUND(3*RAND(),0)`

Always 0, 1, 2 or 3

What a Hassle!

What a Hassle!

There's got to be an easier way!

What a Hassle!

There's got to be an easier way!

There Is.

What a Hassle!

There's got to be an easier way!

There Is.

=RANDBETWEEN(1,4)

What a Hassle!

There's got to be an easier way!

There Is.

=RANDBETWEEN(1,4)

What a Hassle!

There's got to be an easier way!

There Is.

=RANDBETWEEN(1,4)

Always 1, 2, 3 or 4

Wow! We Made It!



But before you go.....

Well Done!



But before you go.....

One More Question

Today's Lecture Was

- a) Amazing
- b) Nice
- c) Like Any Other
- d) Not So Great
- e) Horrible!