



CyChecks



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Motivation/Objective

Functions

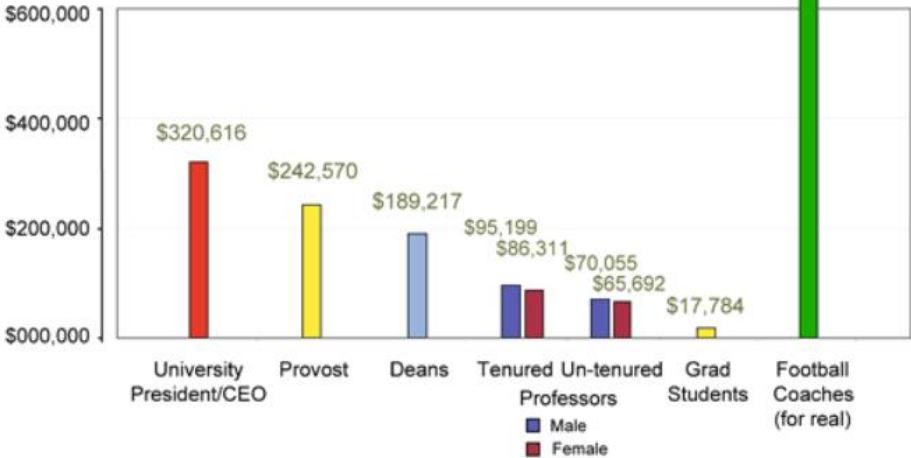
Shiny App Display

Limitations

Future work

"Academic" Salaries

Actual average and median salaries at U.S. Doctoral-granting Universities



Notes: Administrator figures are medians salaries, the rest are averages. All figures in 2008 dollars. Sources: College and University Professional Association for Human Resources 2005 Survey; American Association of University Professors 2007 Survey; The Chronicle of Higher Education 2001 Survey of Graduate Assistants; USA Today Survey of Div. I-A College Football Coaches Compensation 2007.

Motivation

Who are the highest paid ISU employees?

Google...

Motivation

Who are the highest paid ISU employees?

[Google...](#)

[Source data](#)

Motivation

Who are the highest paid ISU employees?

Google...

Source data

Publicly available data doesn't mean it's accessible or usable.

Objective

Catalyze access to public salary data

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Provide resource for negotiating starting salaries



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Catalyze access to public salary data

Provide resource for negotiating starting salaries

Identify areas with possible pay inequities



Functions

1. Get data from the web
2. Anonymize names
3. Get professor info
4. Run stats



Function :
[sal_df]



Web scraping



Function 1 : Web scraping

```
sal_df<- function(limit= 1000, offset = 0, fiscal_year = 2007, token = NULL){
```

How many entries

Where entries start

Info year

Optional token

Function 1 : Web scraping

App Tokens

All requests should include an `app token` that identifies your application, and each application should have its own unique app token. A limited number of requests can be made without an app token, but they are subject to much lower throttling limits than request that do include one. With an app token, your application is guaranteed access to it's own pool of requests. If you don't have an app token yet, click the button to the right to sign up for one.

With an API token - unlimited requests as long as they are not “abusive or malicious”

“Don’t be a jerk!”

Function 1 : Web scraping

```
> sal_df()
# A tibble: 1,000 x 8
  base_salary_date    fiscal_year gender name          place_of_residence position          total_salary_paid travel_subistence
  <dtm>              <fct>      <fct> <chr>          <fct>              <fct>              <dbl>              <dbl>
1 2007-07-01 00:00:00 2007      M  ABRAHAM JIM M STORY          POSTDOC RES ASSOC          37000          1536.
2 2007-07-01 00:00:00 2007      F  ABRAHAM SARAH ANN STORY          CASUAL HOURLY              3987.          NA
3 2007-07-01 00:00:00 2007      M  ABRAHAM JIM M COOK          SYS SUP SPEC III          42410.          NA
4 2007-07-01 00:00:00 2007      M  ABRAHAM THOMAS WARD OAKLAND          CASUAL HOURLY              1029.          NA
5 2007-07-01 00:00:00 2007      M  ABRAHAM THOMAS WARD OAKLAND          GRAD ASST-TA              16200          NA
6 2007-07-01 00:00:00 2007      M  ABRAHAM THOMAS WARD OAKLAND          CASUAL HOURLY              1135.          NA
7 2007-07-01 00:00:00 2007      F  ABRAHAM BARBARA ANN B STORY          COMM SPEC III              59609          1311.
8 2007-07-01 00:00:00 2007      F  ABRAHAM BOONE          ASST MGR FS I              38302          NA
9 2007-07-01 00:00:00 2007      M  ABRAHAM ERIC ALAN STORY          PROF              82467          4429.
10 2007-07-01 00:00:00 2007      F  ABRAHAM JESSICA MARIE STORY          CASUAL HOURLY              3005.          NA
# ... with 990 more rows
```

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```
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# A tibble: 1,000 x 8
  base_salary_date  fiscal_year gender name          place_of_residence position          total_salary_paid travel_subistence
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8 2007-07-01 00:00:00 2007      F  ABRAHAM BOONE          ASST MGR FS I        38302             NA
9 2007-07-01 00:00:00 2007      M  ABRAHAM ERIC ALAN          PROF                82467             4429.
10 2007-07-01 00:00:00 2007      F  ABRAHAM JESSICA MARIE STORY          CASUAL HOURLY        3005.             NA
# ... with 990 more rows
```

No department information.....

Function 1 : Web scraping

IOWA STATE UNIVERSITY

Directory Information

Search

+ Emergency Numbers >

Individuals v

Advanced Search

Individual Search Results

Enter email, name, department...

Search

Advanced Search

☐ Both

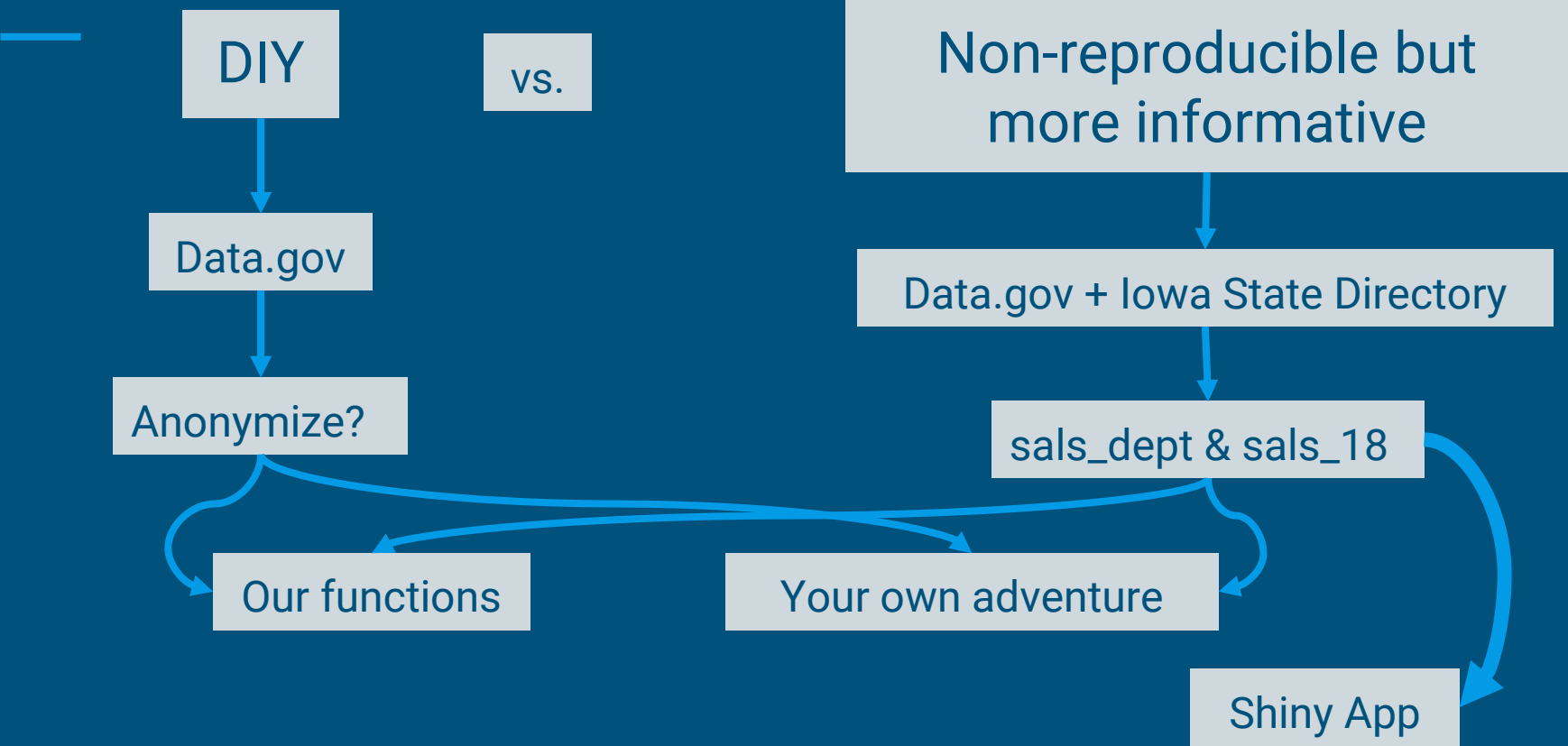
☒ Faculty/Staff

☐ Students

Function 1 : Web scraping

	organization	department	name
283	COLLEGE of AGRICULTURE & LIFE SCIENCES	SEED SC CTR XP	SHYY YUH YUAN
284	COLLEGE of AGRICULTURE & LIFE SCIENCES	AGRONOMY	HORTON ROBERT JR
285	COLLEGE of AGRICULTURE & LIFE SCIENCES	ECONOMICS-AGLS	ELLIOTT CAROL ELAINE
286	COLLEGE of AGRICULTURE & LIFE SCIENCES	AG/BIOSYS ENG	ANDERSON SYLVIA JEAN
287	COLLEGE of AGRICULTURE & LIFE SCIENCES	SEED SC CTR XP	STAHR MIKE G
288	COLLEGE of AGRICULTURE & LIFE SCIENCES	ANIMAL SCIENCE	PALAS GREGORY ERNEST
289	COLLEGE of AGRICULTURE & LIFE SCIENCES	MICROBIOLOGY	CHRISTIANSSEN KAY L
290	COLLEGE of AGRICULTURE & LIFE SCIENCES	AGRONOMY	DAVIS MARY ANN
291	COLLEGE of AGRICULTURE & LIFE SCIENCES	BBMB-AGLS	NILSEN-HAMILTONFALSE
292	COLLEGE of AGRICULTURE & LIFE SCIENCES	ANIMAL SCIENCE	LOY DANIEL DWIGHT
293	COLLEGE of AGRICULTURE & LIFE SCIENCES	ANIMAL SCIENCE	LAMONT SUSAN J
294	COLLEGE of AGRICULTURE & LIFE SCIENCES	IA ST RS FARMS	MEDFORD SALLY
295	COLLEGE of AGRICULTURE & LIFE SCIENCES	ANIMAL SCIENCE	THORSON JEFFREY
296	COLLEGE of AGRICULTURE & LIFE SCIENCES	AG EDUCATION/ST	MARTIN ROBERT ALLEN

Function 1 : Web scraping



Function 2: [anonymize]



Salary Data

- The State of Iowa Salary Book lists the name and salary of every state employee
- Names and salaries are published for all ISU Professors, secretaries, janitors, graduate students, etc.

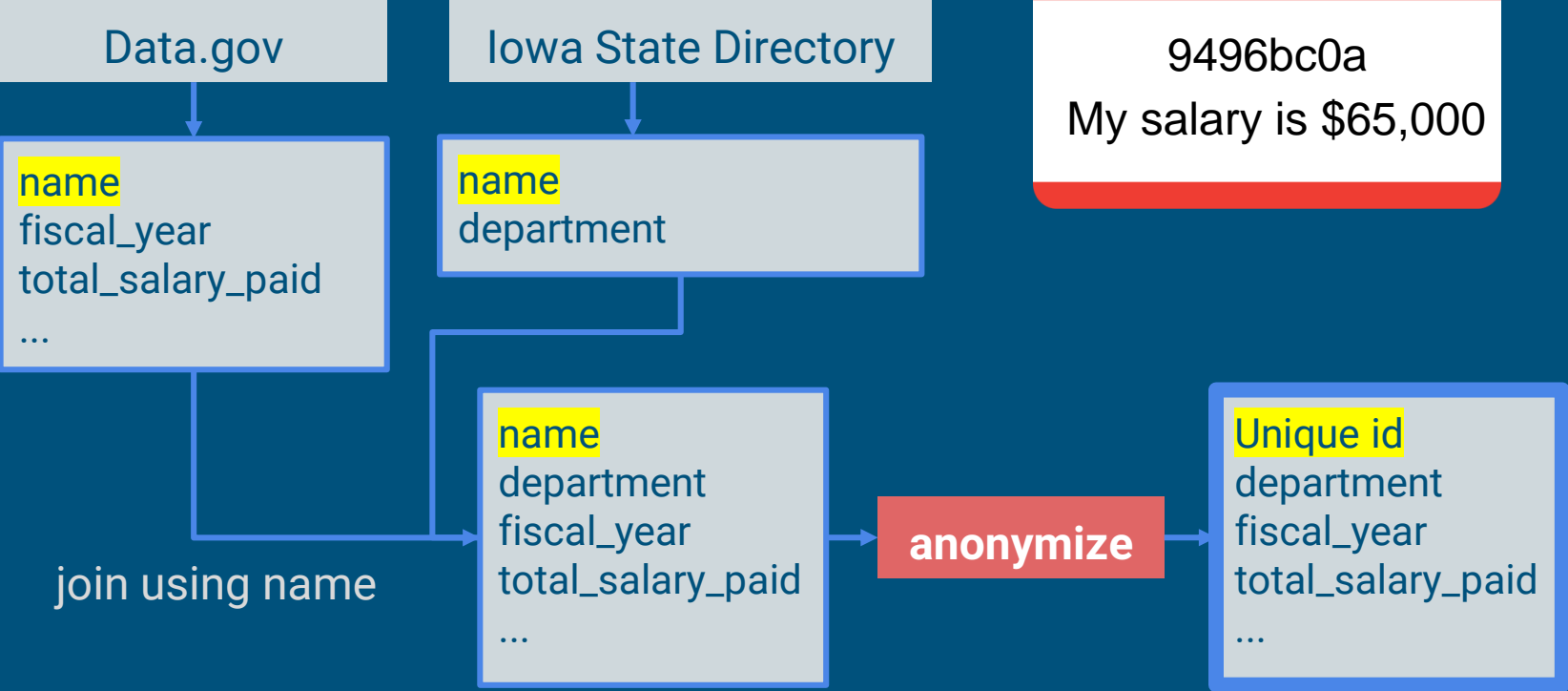


Salary Data

- “Publicly available” vs “respectful of privacy”
- Reasons for anonymization
 - Names not required for our analyses
 - Inclusion of names would likely intensify conversations about pay across genders



Anonymize function



Function 3: [get_profs]



Job Titles for Professors = Untidy Data

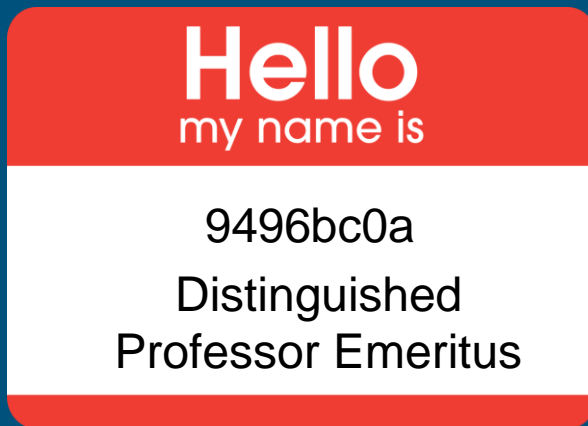
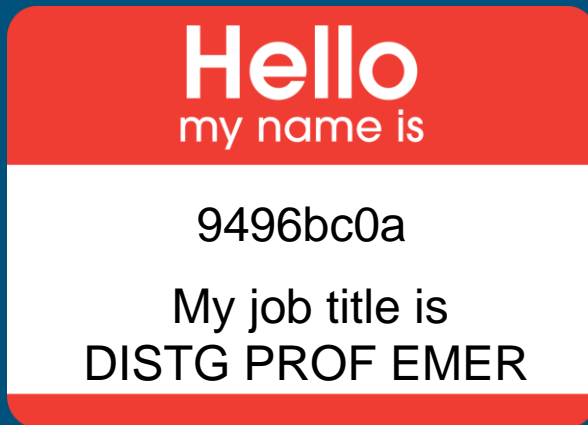
- Particular area of interest - pay gap across genders for ISU professors
- Filter positions that contain the string "PROF"
- Problem - 34 unique professor titles

[1]	"PROF"	"ASSOC PROF"	"PROF & CHAIR"
[4]	"ASST PROF"	"AFFIL ASSOC PROF"	"DISTG PROF"
[7]	"ADJ PROF"	"ADJ ASST PROF"	"DIST PROF EMER"
[10]	"VSTG ASST PROF"	"ASSOC PROF & CHAIR"	"UNIV PROF"
[13]	"VSTG ASSOC PROF"	"PROF EMERITUS"	"VSTG PROF"

- Grouping all professor job titles together could be misleading
 - E.g. Distinguished professor, Morrill professor, and University professor titles come with pay bonus

Tidy Titles for Professors

- Visiting
- Affiliate
- Adjunct
- Assistant
- Associate
- Professor
- Chair
- Distinguished
- Morrill
- University
- Emeritus



Function 4: [stats_mf]



```
# A tibble: 231 x 5
```

	department <fct>	data <list>	term <chr>	p_val <dbl>	verdict <chr>
1	WORLD LANG/CULT	<tibble [50 x 10]>	gender	0.00327	boo
2	ADMISSIONS	<tibble [54 x 10]>	gender	0.00694	boo
3	PHIL/RELIG ST	<tibble [22 x 10]>	gender	0.0103	boo
4	VET DIAG LAB	<tibble [117 x 10]>	gender	0.0127	boo
5	STDT HEALTH CTR	<tibble [76 x 10]>	gender	0.0195	boo
6	EEOB-LAS	<tibble [55 x 10]>	gender	0.0267	boo
7	ANIMAL SCIENCE	<tibble [120 x 10]>	gender	0.0532	boo
8	RECREATION SRV	<tibble [32 x 10]>	gender	0.0572	boo
9	MATERIAL SC/ENG	<tibble [36 x 10]>	gender	0.0857	boo
10	COUNSELING SRV	<tibble [15 x 10]>	gender	0.110	boo

```
# ... with 221 more rows
```

Shiny App



Limitations

Base salary vs. total salary paid

Department information for 2018 only

More sophisticated stats?

Future Work

ISU Committee

Professor categories (we don't know!)

Increase Shiny functionality

Thank You!



What is your department pay pattern?

Go check on our shiny app!