Tutorial with some flashy titles

Introduction

(First paragraph)

Overall, this Shiny App provides projections of symptomatic (detected) infections, all infections, and the number of isolation and quarantine over a period (4 weeks by default).

By default, this Shiny App uses data from Clemson University, including student (residential and non-residential) and employee (faculty and staff) population size, number of current cases, percent recovered within the last 90 days, and the current isolation/quarantine numbers. All the above have options for users to input their own data. For percent fully vaccinated students (assumed to be young adults of age 18-24) and employees (assumed to be adults of age 25-64) and percent boosted among fully vaccinated, users can use estimates from the Center for Disease Control and Prevention (default), use estimates from Clemson University, or input their own estimates. Details of the prediction and statistical models and input parameters are provided in the Appendix.

Analysis for Clemson University

If no information is given by the user, by clicking on the “Run Analysis” button, the Shiny App provides a 4-week projection for Clemson University under voluntary testing based on data collected from the University up to May 10, 2022. Shown in Figures 1(a) and (b) are the projected symptomatic cases and all cases. Output for symptomatic and all infections are categorized into two affiliations, namely, students and employees. In Figure 1(a), during the first week, 26 students and 34 employees with symptomatic infections were detected, 0.1% and 0.7% of their respective population sizes.

Alternatively, under “Output by affiliation”, the user can choose the four-affiliation output (residential/non-residential/faculty/staff). The projected symptomatic and all infections for Clemson University are provided in Figures 2(a) and (b), respectively. Residential and non-residential cases add up to the student cases in Figure 1(a) and (b). Similarly, faculty and staff cases add up to the employee cases in Figure 1(a) and (b).

Analysis for University of Georgia

We now demonstrate how to use this Shiny App to project infection cases by using data publicly available on the COVID-19 dashboard from the University of Georgia. Detailed input is given in Table 1. To input this information, the user needs to change several default settings on the sidebar.

* To insert the population sizes, first select “No” under “Use Clemson population size”. This enables the input for “Number of students” and “Number of employees”. For community population, change the default of 50,000 to the community population size 127,315 of Athens, GA.
* Similarly, select “No” under “Use Clemson currently infected”. This enables the input for “Currently infected students” and “Currently infected employees”.
* Click the “Run Analysis” button at the top of the sidebar.

Table 1. College-specific input parameters.

|  |  |
| --- | --- |
| **Input parameter** | **Value** |
| **University of Georgia** |  |
| …Student population (residential and non-residential) | 40,118 \* |
| …Employee population (faculty and staff) | 10,856 \* |
| …Community population (Athens, GA) | 127,315 † |
| …Percent students vaccinated | 63.5% ▲ |
| …Percent employees vaccinated | 76.2% ▲ |
| …Percent students recovered | 1.8% ▲ |
| …Percent employees recovered | 3.6% ▲ |
| …Current student cases | 24 ■ |
| …Current employee cases | 17 ■ |
| **Pennsylvania State University** |  |
| …Student population (residential and non-residential) | 46,930 \*\* |
| …Employee population (faculty and staff) | 13,511 \*\* |
| …Community population (State College, PA) | 42,160 ‡ |
| …Percent students vaccinated | 92.0% □ |
| …Percent employees vaccinated | 86.3% □ |
| …Percent students recovered | 2.7% ▲ |
| …Percent employees recovered | 4.3% ▲ |
| …Current student cases | 23 □ |
| …Current employee cases | 0 □ |

\* From [University of Georgia website](https://www.uga.edu/about/facts/).

† From [U.S. Census Bureau](https://www.census.gov/quickfacts/fact/table/athensclarkecountyunifiedgovernmentbalancegeorgia/POP010220).

▲ Estimates from the Center for Disease Control and Prevention.

■ From [University of Georgia COVID-19 dashboard](https://healthcenter.uga.edu/healthtopics/covid-19-health-and-exposure-updates/) as of 5/5/2022. Infection numbers reflect detected infections between 4/25/2022 and 5/1/2022.

\*\* From [Pennsylvania State University website](https://datadigest.psu.edu/student-enrollment/) for University Park.

‡ From [U.S. Census Bureau](https://www.census.gov/programs-surveys/popest/data/tables.2019.html).

□ From [Pennsylvania State University COVID-19 dashboard](https://app.powerbi.com/view?r=eyJrIjoiNDY3NjhiMDItOWY0Mi00NzBmLWExNTAtZGIzNjdkMGI0OTM0IiwidCI6IjdjZjQ4ZDQ1LTNkZGItNDM4OS1hOWMxLWMxMTU1MjZlYjUyZSIsImMiOjF9) for University Park as of 5/5/2022. Infection numbers reflect detected infections between 4/25/2022 and 5/1/2022.

A picture containing graphical user interface

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Figure 1(a). Projected symptomatic infections based on data from Clemson University.

A picture containing graphical user interface

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Figure 1(b). Projected all infections based on data from Clemson University.

Graphical user interface

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Figure 2(a).

Graphical user interface

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Figure 2(b).

A picture containing graphical user interface

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Figure 3(a).

Graphical user interface

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Figure 3(b).