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# Tech-Basics-2 Exam Project

## Instaview. - A MVP-GUI of an *Alternative Front-End* to Instagram

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# Project-Report – Alternative Instagram-Frontend

## The Proposed Application

Instagram is one of the most used contemporary societal information & communication technology-infrastructures. It is, among other popular social media and instant messengers, used in personal contacts as well as a widespread source of information and knowledge sharing as well as a crucial public for societal discourse. But, as it is run by a profit-oriented & intransparent company, one of several problematics about it is the vast & intensive data-collection which represents the base of its business strategy, and thus is the guiding force in its decisions about the platform organisation. One strategy to prevent platforms to accumulate multifaceted informational power over populations all over the world are what is called ‘alternative-front-ends’. These are (often free<sup>1</sup>/open source) software tools which allow users to access a platform through a mediating server and software infrastructure: alternative front-ends/user-interface for e.g., Instagram, YouTube, Twitter or else. This is what I here proposed as an application for Instagram: an alternative front-end software allowing to access contents of Instagram without leaking of user-data to the platform.

## Social Impact & Value

Instagram has an enormous societal impact as communication- & importantly as information medium all over the world. It is used a lot in personal relationships, following friends for what they post etc.; but it importantly is also a societal information-infrastructure; – people use it for receiving news, for following politicians, journalists, civil-society-organizations, companies & marketing, etc. and draw e.g., educational contents or political perspectives from influencers. Besides all the small and tiny-(un)shiny lifestyle-sharing, co-development and socialization being present in all these interactions. We see, a lot’s going on. Instagram is at least an important, and to some extent (– personal opinion –) also quite valuable societal information- & communication infrastructure.

The problematic about it is, that Instagram is part of a profit-driven, private enterprise, whose interest is in first instance to gain revenue out of advertisement shares, being (supposedly) valuable/monetizable through their personalized targeting according to an immense amount of profiled user data (Gehl, 2015, p. 3, Sadowski, 2019, p. 2). There are many more problematizable issues around the monopolized, privately-governed, intransparent and profit-driven infrastructure of contemporary social media (Gehl & Synder-Yuly, 2016, p. 79) and several reasons for which to have discomfort with the data-economy mentioned above. One – one which strikes me personally in first instance – is, the enormous power potential which arises when not-democratically controlled organizations intransparently amass vast amounts of intimate information about populations all over the world. Antoinette Rouvroy has coined the term ‘algorithmic governmentality’ for a form of

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<sup>1</sup> In the sense of libre, (,free as in speech not free as with beer’), not free-from-(direct,-monetary)-paying;).

exercising power that aims at fully reducing the uncertainty of subjective agency through maximal profiling and fully personalized informational microtargeting (Rouvroy, 2013, p. 10). As the Cambridge-Analytica scandal has shown (Dachwitz & Rudl, 2018), such power potential implies serious risks, also if you'd trust companies as Facebook & co to 'not willfully giving away' user's data to actors you/we'd better not have them have it. In the face of authoritarian regimes and right extremist political streams on the rise across the globe, it might be at least valuable sensitivity to societally prevent information technology infrastructures from being in principle based upon users selling rich and intimate personal information to companies in order to participate at (certain (large) parts of) societal (online) life.

For me personally out of this results that I don't want to give Instagram my data, - but want to use it as political & cultural information medium. In an alternative formulation: I find it highly problematic (even though of course not surprising) that states & politics widely accept this situation, and I see a definite need, to develop short- and long-term alternatives of societal information and communication infrastructures. Focusing here now only on the privacy aspect, leaving other ones (of the contemporary monopolic & undemocratic information-technology-landscape), as – e.g. (political) homogenization & filter bubbles and the power-question of 'the algorithm(s)' shaping our online life, aside, I want to point to the technology of *alternative front-ends*<sup>2</sup>. This is not a radical solution, and more symptomatic treatment – but still a valuable tool on a way to other infrastructures. These are (regularly free/open source) software tools which allow to access a certain service of interest (e.g. Google Search, Youtube, GitHub, Quora, TikTok, ...), but not through a direct connection, but by being mediated through a server, which hosts the 'alternative front-end'-interface. Thus, users watch the same Youtube movie on 'Invidious', and Invidious gets it from Youtube. Users are (potentially) in contact only with- and provide data to the provider of that server, and not visible to the target platform as such<sup>3</sup>. One good example for this e.g., is Invidious (an alternative front-end for YouTube – you should holy up check it out, - I found it quite wonderful to find, everything's there, easy access (not loosing much data) & without ads even more:)<sup>4</sup>. Thus alternative front-ends represent at least a valuable shorthand solution to still participate at digital public life, potentially especially for people whose privacy and data are more sensitive than others' as e.g., political activists (living under authoritarian regimes).

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<sup>2</sup> <https://github.com/mendel5/alternative-front-ends>; also very practical: <https://libredirect.github.io/> (browser extension for automatic redirection:).

<sup>3</sup> As e.g., *nitter* (an alternative Twitter frontend), which makes „[a]ll requests go through the backend, [so that the] client never talks to Twitter“ (zedeus, 2023).

<sup>4</sup> <https://invidious.io/>

## Uniqueness

There are/were already implementation(s) of such software in a similar manner for Instagram: Bibliogram<sup>5</sup> & Proxigram<sup>6</sup> – from which this proposal draws inspiration, but these are currently either out of development (because-), or face harsh difficulties due to blocking by Instagram (cadence, 2023)<sup>7,8</sup>. Furthermore, they could be seen to have certain shortcomings, first and foremost from a usability perspective. Bibliogram was developed as an alternative front-end to Instagram, enabling you to *access user-profiles and single posts*, as it „takes data from Instagram’s public profile views and puts it into a friendlier page that loads faster, gives downloadable images, eliminates ads, generates RSS feeds, and doesn’t urge you to sign up.“ (Bibliogram, 2023) It is not specified by the developer in what ways Bibliogram precisely works to secure user-privacy at Instagram-consumption, i.e. if the design of Bibliogram makes the Instagram server see only the Bibliogram-server accessing it, or also forwards data from the user client to it. And secondly, beneath this privacy-concern, there is also functional room for improvement. As Bibliogram doesn’t allow a personal user account, it is not possible, to „to anonymously post, like, comment, follow, or view private profiles“ (funkyspacemonkey.com, 2020). Furthermore, and also due to the lacking user-profile system, there’s no possibility to access a timeline of posts; only single profiles and posts. These two aspects on the one hand don’t allow for participation in the digital public space Instagram constitutes with the communicative functions of liking, sharing and commenting; and on the other hand, restrict the user experience and disallow using Instagram as a medium of getting societal & cultural information, as posts are not delivered to you automatically, you have to actively look for them<sup>9</sup>.

Two crucial functional additions which can thus be made by another alternative-front-end for Instagram, which aims at enabling encompassing access to Instagram as a societal & political information & communication infrastructure, are thus first an accounting system – allowing to create a personal profile (at the alternative-front-end service) in order to follow, to like, to comment, to post etc. And second, also enabled hereby, a personal timeline<sup>10</sup>.

## My Approach – InstaView:

The aim I set for this project, was, to develop a MVP version of an exemplary GUI (Graphic User Interface) for how an alternative-front-end application for Instagram might look like. From a ‘who-shall-gonna-(be-able-to)-use-it’-Perspective, therefore – in theory – imitation/resembling the

<sup>5</sup> Bibliogram: <https://bibliogram.art/>

<sup>6</sup> <https://codeberg.org/proxigram/proxigram>

<sup>7</sup> The only left Bibliogram instance I found, through websearch, (but which appears also fully blocked by Instagram) is <https://bibliogram.domain.glass/>

<sup>8</sup> <https://ig.opnxng.com/search?q=searchanything>

<sup>9</sup> What might definitely also have advantages e.g., regarding ‘informational health’, or sustainable media consumption, but also has its shortcoming.

<sup>10</sup> As this was e.g., planned by nitter (zedeus, 2023), which is now sadly discontinued.

functionality and user-experience of Instagram seems sensible: if it shall be accessible to many people who like using Instagram, ‘InstaView’ has to do a comparably nice (visible) job in your everyday life for you. While one could – for valuable different reasons – also opt for design decisions, making things different than the Instagram UI has it, I went for mimicry. Thus, – as it is a GUI-Development project, there is actually little of new to it, in what I made. The new part would lie in the back-end of the alternative front-end accessing the platforms servers (against attempts to be blocked), or in making different design-decisions.

The scope of functionality, I could envision for InstaView, delimits itself to:

- logging into an own user-account
- where one can follow other accounts
- check out their posts in a (chronological) own timeline
- see their profiles, and look to their collections of posts.
- The own user account can store public user information.

While of course – as stated above – very desirable, more interactive features: liking, commenting, posting & sharing yourself; or different formats: stories, reels, ... very well exceeded the possible in the framework of this undertaking.

I realized this mainly using the python GUI-Library CustomTkinter<sup>11</sup> (based upon Tkinter), as also in small – but crucial – bits & pieces of code, pandas, a data-processing library.

The result is a sweet little – ‘smartphone’-format like – application, a little-quite expandable in its design elaborateness, but also simplicistic, original, straight-forward, one might also say (don’t let yourself discourage by the login-Screen:!).

As a user, you find yourself first in front of a login- (/signup) screen, and you can register or log into your account by a username & password. These get stored into a user\_{username}.csv file, where potentially also other of your profile information might land (not yet implemented). After logging in, you come first straight to your homepage\_timeline – the place of love & life(time:) – where all your favorite followed people drop their content by (don’t let yourself confuse, by only two accounts being included with posts – time is precious (also in production)). Here you can scroll up & down imagecamptios, click on user-accounts and view their profiles. The other part of the homepage is made up through your own user\_account page. (While actually quite feasible in theory, quite some (small) functionalities didn’t (yet) make it into the MVP, due to time: e.g. the option to update your profile information.) The heart of the application: content-rich and easily packed media data – in form of (only images, no videos etc. at this place) – together with the further data of user\_accounts, and their posts, is also ordered in csv files.

<sup>11</sup> <https://customtkinter.tomschimansky.com/>, & <https://github.com/TomSchimansky/CustomTkinter>

While I already in Tech-Basics 1 worked on the prototype, having an actually really similar visible end-product, I nonetheless had quite some learning through the re-developing of it. I nearly completely rebuilt the Tech-Basics 1 prototype due to the several reasons, that first, changing the underlying structure of data-management had quite a strong impact on the rest of the code – (depending on the way I integrated data-management (through python-internal datastructures (mainly lists)) in the first endeavor). Secondly, changing the GUI Library (from Tk, to Ctk) made me factually rewrite the largest part of the code of course (even though they differ only minimally) (conceptually being of course able to draw from the things I already implemented in the first development). And a third reason was, that I extensively intended, & tried to develop the code out of the comments and/or at least consequently accompany it with proper documentation (what's proper?:). One thing I very positively found out to learn & like, was the way I used #logging statements in the code, to find & solve errors and get a closer idea about how the things in all these (even so few) functions & variables go along:).

Props & thanks an uncountable amount to all the kind & caring people writing these documentations <3, in order for others to make it possible to understand pandas, Tk & co!

## Coding-References:

- Tech\_Basics\_1- & 2:!) without, I'd haven't (yet & so) had any access to-, ease with, & connection to python, & software-development / programming / coding generally :)! thanks:D.
- (JAVA Basics ('Methodics of Application Development') by Ralph Welge, and Software-Architecture by Thomas Slotos. Very programmatic, very helpful:!)!
- Online-Documentations <3 love, piece & thanks – we would be less without you!
  - <https://tkdocs.com/tutorial/index.html> – Best friend from the start
  - <https://pandas.pydata.org/docs> Wow:) - ..
  - <https://customtkinter.tomschimansky.com/> neat & practical! <3
  - in certain rare but valuable cases: <https://docs.python.org>
  - <https://testdriven.io/blog/clean-code-python/>
- Tutorials & co: no big things, some contextual understandings, some tiny re-assurances
  - <https://www.geeksforgeeks.org/reading-writing-text-files-python/>
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**Eidesstattliche Erklärung**

- ☒ "Ich erkläre hiermit an Eides statt, dass ich die vorliegende Arbeit selbständig und ohne unerlaubte fremde Hilfe angefertigt, andere als die angegebenen Quellen und Hilfsmittel nicht benutzt und die in den benutzten Quellen wörtlich oder inhaltlich entnommenen Stellen als solche kenntlich gemacht habe."
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Zutreffendes ankreuzen

30.06.2024



(Datum, Unterschrift)