SnapStax

Helping Nonprofits to Connect With Clients

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1. Introduction

nFocus solutions is a software development company which specializes in creating data collection software for nonprofit organizations. A specific sector of nonprofits that nFocus works with are after school programs that assist youth and young adults in need. At these organizations, many of the frontline workers are volunteers and staff that are highly dedicated to the pursuit of interacting with youth on a day-to-day basis in order to bring real positive change to the students in a personal and impactful manner.

Through the course of our research, we learned that one of the biggest challenges faced by nonprofit staff members is the amount of time & resources that goes into data gathering. During and after the intake process, case managers spend time with the new clients, gathering a range of information including basic demographic data and intake interview responses. Depending on the nature of the program, the data types differs. The onus of transferring all this data into the case files lies entirely on the nonprofit staff member.

Given the pivot in our investigation, the goals for our final deliverable have focused on addressing our revised research question:

“How might we take away the burden of extensive data collection from nonprofit staff so they can be more present with their clients?”

2. Final Deliverable: Goals & Objectives

Coming out of Milestone 2 we were focused on getting additional feedback from nonprofit workers to identify the strongest concept that will assist them with data collection. The team then brainstormed design recommendations for the winning concept, including ways in which it could integrate with the nFocus platform.

Overall Goals:

- Identify the strongest concept for facilitating data collection based on feedback from nonprofit staff
- Articulate the design recommendations for this concept
- Communicate the overall experience for using this new concept
- Provide guidance on ways to integrate the new concept within the nFocus system

3. Findings & Outcomes

3.1: Key insights

This section recaps some of the key insights and findings that shaped our ideation and design recommendations.

3.1.1: Nonprofit staff: audience insights

The staff at nonprofits wear many hats & juggle a wide range of roles and responsibilities
As a result, the frontline worker audience profile is more distributed. We found that many staff members may be gathering data in various forms, regardless of title. The smaller the nonprofit, the more "hats" each member wears.

Data collection & entry is taxing for nonprofit staff members
Staff members have to often modify their data collection process, including note taking on pieces of paper, or relying on their memory after a client meeting. This can be taxing for the time-strapped worker since they need to spend additional admin time transferring notes to spreadsheets and/or internal system.

3.1.2: Client engagement context

Use of digital devices for note-taking depends on the client context
Nonprofits deal with a variety of clients, ranging from children with special needs, vulnerable populations, the elderly, & homeless. In many situations, these clients are unable to handle digital devices, such as:

- Distraction of children with autism
- Women who have experienced domestic abuse

Situations such as these force nonprofit staff workers to modify their data collection method in order to support their clients.

Field engagement not conducive to use of digital devices
When caseworkers are in the field, it's hard to carry around digital devices since they need to be nimble and on the go.

3.1.3: Data collection & input

Disparate & inconsistent data collection methods
Depending on the type of engagement & client context, the data collection method ranges from paper based surveys to sign-in sheets to digital case notes. This leads to challenges during data analysis & report generation.

Data entry is very batched
Data collection is often done during the client engagement, or within a day. Depending on the client context, data collection is often done on paper. Nonprofit staff members often wait until there is a collection of documents to transferring this data into an internal system.

Data collection to serve clients has little overlap with data collection for grants and nonprofit updates

- For clients
  - Case notes are often collected in separate systems or in local files
  - Data about clients is often shared verbally among nonprofit workers
- For grants / nonprofit updates
  - Number of people served, including by demographic segments
  - Attendance of offered programs
  - Alumni outcomes

Data quality confidence can be low
Given the inconsistent data collection & storage methods, the data is often incomplete or conflicting. This reduces the overall confidence in data quality, prompting nonprofit staff members to double check the data with peers & other caseworkers to remember necessary details. Additionally, the data about client situations can change and can therefore be hard to accurately report on.

3.2: Concept Testing: Participant Feedback

The team shared 4 early stage concept sketches with 6 participants. Given some of the recruitment challenges we faced with the nonprofit staff members, we decided to broaden the criteria to include participants that dealt with qualitative data collection. This included:

- School counselors / academic advisors
- Psychiatrists
- Nurse Practitioners
- Physicians

Of the 4 concepts tested, the following concepts most resonated with participants:

- Concept 1: Integrating Analog Case Notes
- Concept 2: Living Document

3.2.1: Concept 1: Integrating Analog Case Notes

Concept presented

A case file form is printed so the case worker or staff member can take notes during client interaction. Afterwards, the nonprofit worker takes a photo, the handwritten notes are recognized and transformed into structured data, and the data are populated into the nFocus database for the appropriate client. This concept expedites case note data entry and validation to allow staff more time to focus on client interactions when digital note taking is not possible.

Participant feedback

Based on participant feedback, a few themes emerged, which are captured below:

What's working?

Themes/topics	Participant Feedback
Technology as a barrier between service provider and client	*"I'm having to spend waaaaay too much time, printing, handwriting, dictating, checking the dictation for accuracy, instead of caring for my patients. I don't want technology to be a barrier between me and my patients. This would be extremely valuable in psychiatry."* - P5
Allows service provider to focus on building a connection with the client	*"Being able to take a picture and say 'I'm done' for case managers would be really nice, because their job isn't data collection, their job is talking with the clients and helping them figure stuff out. They have a super heavy caseload. Often times, their case management meetings are really emotionally draining and when you're done, you just want to be done. I don't think she types while the meeting is happening, I think she does it afterward. Reliving what that meeting was about is just difficult."* - P3
Enables services providers to be more efficient with their time	*"Helped with time efficiency as the document could be uploaded and no additional manual entry of data."* - P1
Services providers need not be tied down to a digital device	*"Just makes it easy to go talk to anyone and not have to have a computer."* - P1

What would make this idea stronger?

Themes/topics	Participant Feedback
System should be able to capture all data formats	*“Would it be able to copy and paste [handwritten text]? Because it’s a picture?”* - P1
Ability to read bad/all handwriting types	*“You have to make sure the providers have good handwriting!”* - P6
System should provide reminders to avoid data loss	*“How do you ensure that they do not forget to scan the documents? Anything the system can do to reduce the cognitive load is helpful. These guys are not just there to triage. They are there to provide blankets, serve food. You just don’t want to burn out the volunteers.”* - P6

3.2.2: Concept 2: Living Document

Concept presented

This concept enables nonprofit staff to build a wiki of the client’s story that can be edited at anytime by staff members with access to file. This concept allows staff to see progress and development in the clients by reading the history of interactions.

Participant feedback:

Based on participant feedback, a few themes emerged, which are captured below:

What’s working?

Themes/topics	Participant Feedback
Ability to access data that is up to date	*“I think that’s really useful. I can’t think of any con… [currently we use a] single file for each meeting… The case manager and the chaplain interact with residents on a normal basis. They have a feel for where they are at. They use case notes and daily staff notes that our chaplain makes and their personal experience with the residents so if there is a problem they can see where it started.”* - P2 *“My initial reaction, is that’s cool. I have colleagues that are psychotherapists, and sometimes it’s a little difficult to find the latest notes that were added, or what the most important parts were.”* - P5

What would make this idea stronger?

Themes/topics	Participant Feedback
Drawing attention to the most important data	“*I’m looking for anything significant that changed. Such as a life event - divorce, move, arrest. Any recent change in health. Physical illness, recent hospitalization. Within the health care setting you have very limited time, so anything that you can do to make the most important data jump out.”* - P5
Universal search & ability to filter case notes	*“Unless [the living document] is searchable, it’s not very useful to me if I can’t report it out.”* - P1

4. Product Requirements Outline

4.1: Goal

Create a tool that eases the process of non-digital data capture, allowing nonprofits to be more present & connected with their clients. Our goal is to create a system that not only simplifies the data capture process, but also centralizes access, allowing nonprofit staff members to access updated case information about individual clients without the worry of data loss.

4.2: Who's it for?

All nonprofit staff members that need to access case information, some of the roles include:

- Program directors
- Caseworkers
- Frontline workers
- Grant writers
- Founders

4.3: Why build it?

- Data is the lifeline that ensures that nonprofits continue to get funding to deliver services
- There's often lack of confidence in data quality, due to incomplete or inaccurate data
- Capturing data & entering it into a digital format is duplicative work that is time consuming & taxing for the nonprofit staff
- Data collection is often not centralized, as case notes are often collected in separate systems or local files
- Based on client needs/context, technology often becomes a wall between the service provider and client

4.4: What is it?

Introducing: SnapStax

This tool will include the following functionality:

- Empty templates/forms that non-profit staff members can print out and take handwritten notes on
- Handwritten notes & other data formats gets converted to digital format: Take a photo using the phone or physical scanner, and upload through the interface
- System allows user to check for errors before saving digital content to a central repository (aka Living Document)
- Users have access to updated case files & information

- Universal search & ability to sort data based on standard & custom filters

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5. Design Recommendations

5. 1: Snapstax: Design Recommendations

The design recommendations are captured below:

- Able to capture all data formats (text, visuals, charts, tables)
- Able to read & convert all handwriting types
- Send reminders/prompts to ensure that all data is captured & converted
- Once uploaded to the platform, the platform provides users the ability to review and modify content and check for errors

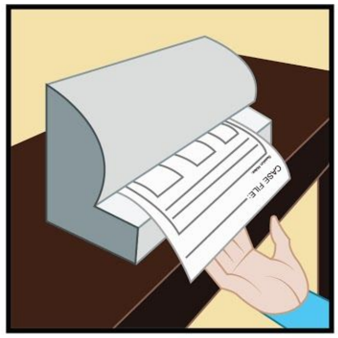
- Digital repository draws attention to the most important data, as customized by the nonprofit staff (eg.: most recent interaction, key life event, medical/health updates, etc.)
- Universal search with the option to filter content

Integration with nFocus platform

- This could be another offering within nFocus' TraxSolutions platform - that focuses on simplifying the data entry process.

5.3: Scenario Storyboard

Staff member creates the standardized note-taking form that asks for key information to note during client sessions.

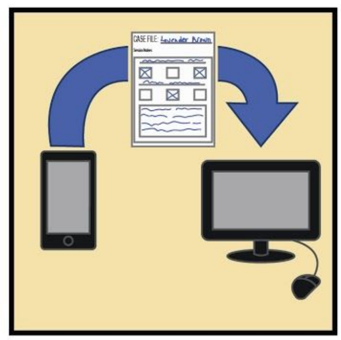


The standardized form is then printed out for staff member to collect notes with during client sessions.

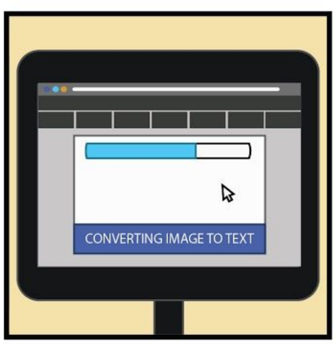
Staff member meets with client and is able to freely converse and engage with the client to discuss the matters of importance.

The note-taking form is easily filled out during the session as important information occurs.

Staff member easily snaps a photo of the completed form with a mobile device.



The photo is then transfered from the mobile device to one of the nonprofit's computers.

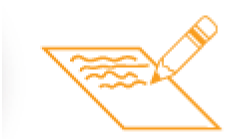


The image is then uploaded to the image conversion tool that analyzes the photo of the completed form.

The markings and writing from the form are recognized by the conversion tool and converted to data.

The information and data from the analyzed form is then added to the living document of the client for easy access for the rest of the nonprofit to view.

5.4: Experience Map

Stakeholder Ecosystem	*Actions*	*Pain-point Addressed*
	Non-profit staff members are able to print copies of forms in preparation for meetings.	Data about client situations change, and can therefore be hard to accurately represent in reports.
	The printed forms will maintain consistent spacing and layout to the web form to provide users with a consistent experience regard. Collect paper notes while interacting with clients.	Data Collection is completed on an ad hoc basis.
	Take photo of notes collected and upload through the interface.	The data is collected in disparate methods including paper, spreadsheet, and shared databases.
	Notes and data analyzed by the tool are validated by comparing paper for the populated fields on website.	The data analysis requires multiple iterations of data validation due to concerns of inaccurate data. Data collections and storage methods are common culpriate of inaccurate data.
	Each case worker can highlight information within a client's living document. The filtering of information pat	Client information and data is often shared with verbal communication

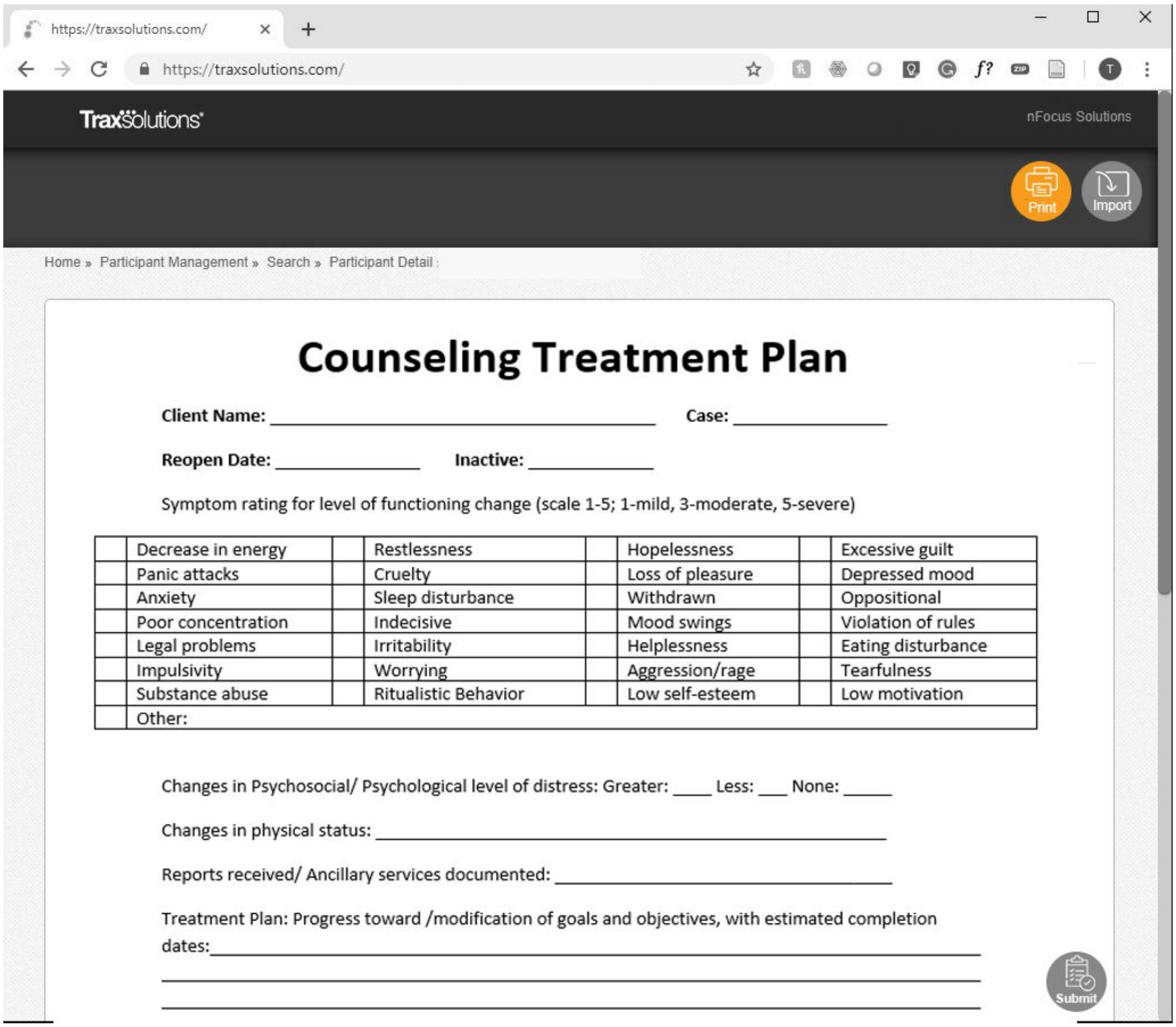
5.5: Technical Requirements

The execution of this software based tool will be dependant on the ability of nFocus to incorporate reliable intelligent character recognition (ICR) into TraxSolution. This section should be used as a guide guide to help filter the available software packages available in the market for 3rd party software providers. An ICR software package is a system that learns different fonts and styles of handwriting. The core function of an ICR system is the ability of a computer to study handwriting and learn to recognize it to improve accuracy and recognition. There are several software packages available that provide optical character recognition (OCR) but many of these tools lack the ability to process handwriting.

An ICR system can be considered a specialized subset of OCR, as most OCR software packages limit function to only machine printed text. At the time of publishing this document most software available to recognize handwritten text require uploading images files to artificial intelligence service providers. The users' comfort with privacy concerns related to use of such services was not included in this project. Previous to incorporating the ICR function into TraxSolutions it is recommended that nFocus conduct studies to understand users' thoughts on related privacy topics.

5.6: Wireframes

A button labeled “Print” with corresponding icon will be placed at the top right of each form data entry icon. The buttons’ locations will be anchored to maintain consistent position on the screen regardless of the user's current view of the form.



Counseling Treatment Plan

Client Name: ______________________ **Case:** ____________

Reopen Date: ____________ **Inactive:** ____________

Symptom rating for level of functioning change (scale 1-5; 1-mild, 3-moderate, 5-severe)

	Decrease in energy		Restlessness		Hopelessness		Excessive guilt
	Panic attacks		Cruelty		Loss of pleasure		Depressed mood
	Anxiety		Sleep disturbance		Withdrawn		Oppositional
	Poor concentration		Indecisive		Mood swings		Violation of rules
	Legal problems		Irritability		Helplessness		Eating disturbance
	Impulsivity		Worrying		Aggression/rage		Tearfulness
	Substance abuse		Ritualistic Behavior		Low self-esteem		Low motivation
	Other:						

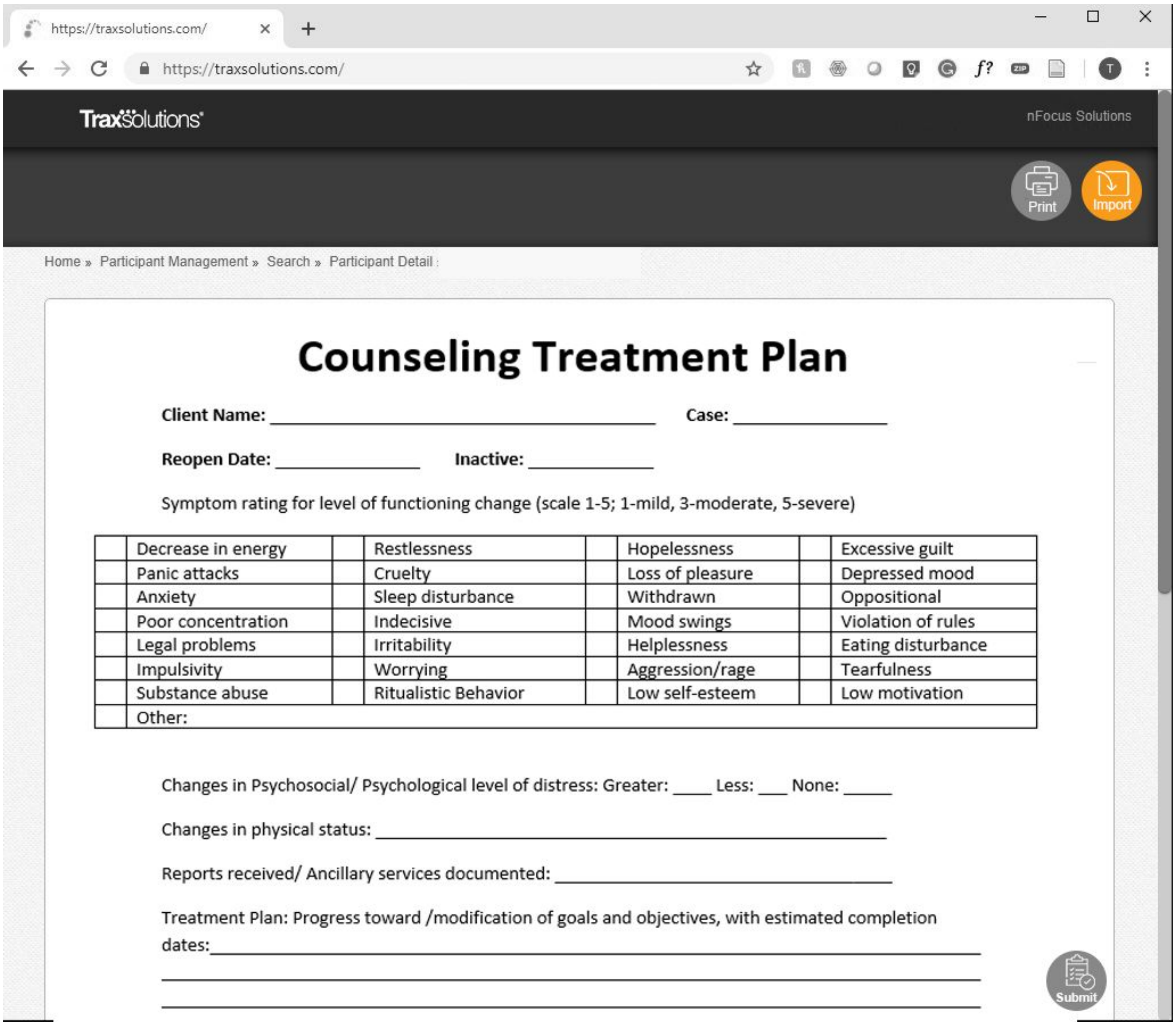
Changes in Psychosocial/ Psychological level of distress: Greater: ____ Less: ___ None: _____

Changes in physical status: ______________________________

Reports received/ Ancillary services documented: ____________________

Treatment Plan: Progress toward /modification of goals and objectives, with estimated completion dates:______________________________

A button labeled “Import” with corresponding icon will be placed to the right of the Print button.



Counseling Treatment Plan

Client Name: ____ **Case:** ________________

Reopen Date: _______________ **Inactive:** _____________

Symptom rating for level of functioning change (scale 1-5; 1-mild, 3-moderate, 5-severe)

	Decrease in energy		Restlessness		Hopelessness		Excessive guilt
	Panic attacks		Cruelty		Loss of pleasure		Depressed mood
	Anxiety		Sleep disturbance		Withdrawn		Oppositional
	Poor concentration		Indecisive		Mood swings		Violation of rules
	Legal problems		Irritability		Helplessness		Eating disturbance
	Impulsivity		Worrying		Aggression/rage		Tearfulness
	Substance abuse		Ritualistic Behavior		Low self-esteem		Low motivation
	Other:						

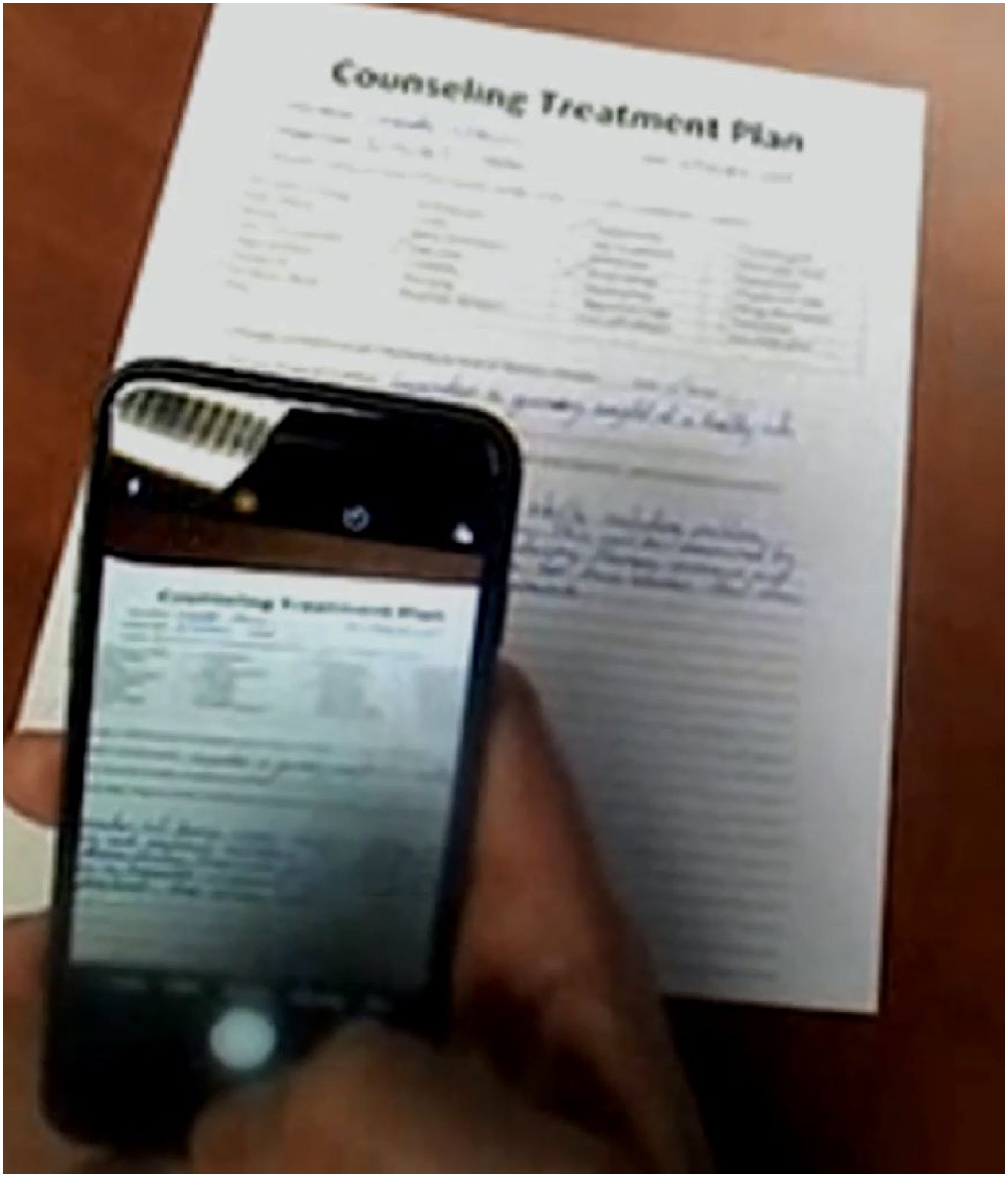
Changes in Psychosocial/ Psychological level of distress: Greater: ____ Less: ___ None: _____

Changes in physical status: ____

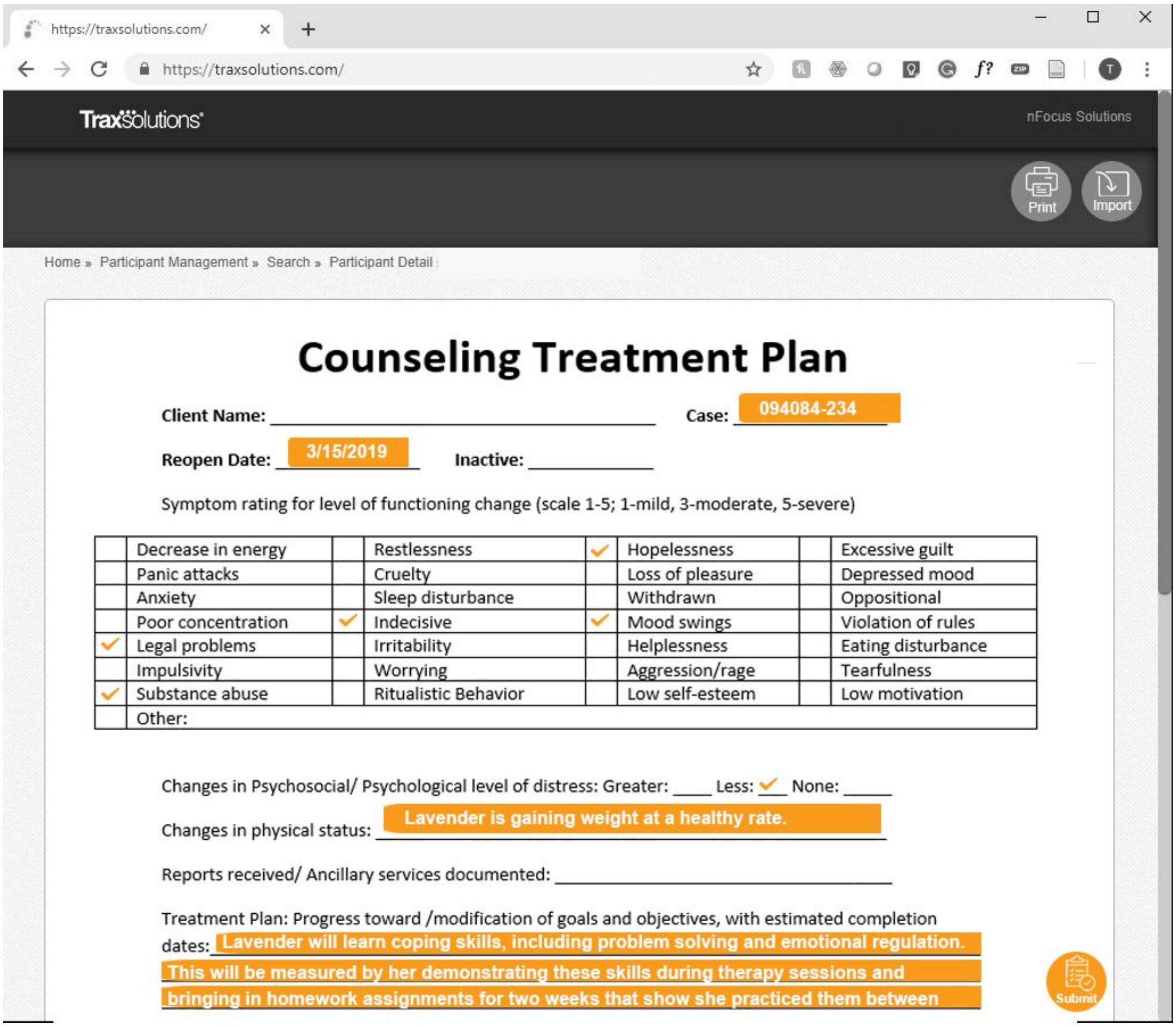
Reports received/ Ancillary services documented: ___________________________________

Treatment Plan: Progress toward /modification of goals and objectives, with estimated completion dates:____

After selecting the Import button the website will access the camera on the users phone to upload the document to TraxSolutions for analysis.



After scanning the document, the fields in the form will be populated with text recognized on the scanned document. The background of the text will be appear in a color to attract users' attention. A button labeled "Submit" will be anchored at the bottom right corner of the screen. The button's location will be anchored to maintain consistent position on the screen regardless of the user's current view of the form.



Counseling Treatment Plan

Client Name: ______________________ **Case:** 094084-234

Reopen Date: 3/15/2019 **Inactive:** ____________

Symptom rating for level of functioning change (scale 1-5; 1-mild, 3-moderate, 5-severe)

	Decrease in energy		Restlessness	✓	Hopelessness		Excessive guilt
	Panic attacks		Cruelty		Loss of pleasure		Depressed mood
	Anxiety		Sleep disturbance		Withdrawn		Oppositional
	Poor concentration	✓	Indecisive	✓	Mood swings		Violation of rules
✓	Legal problems		Irritability		Helplessness		Eating disturbance
	Impulsivity		Worrying		Aggression/rage		Tearfulness
✓	Substance abuse		Ritualistic Behavior		Low self-esteem		Low motivation
	Other:						

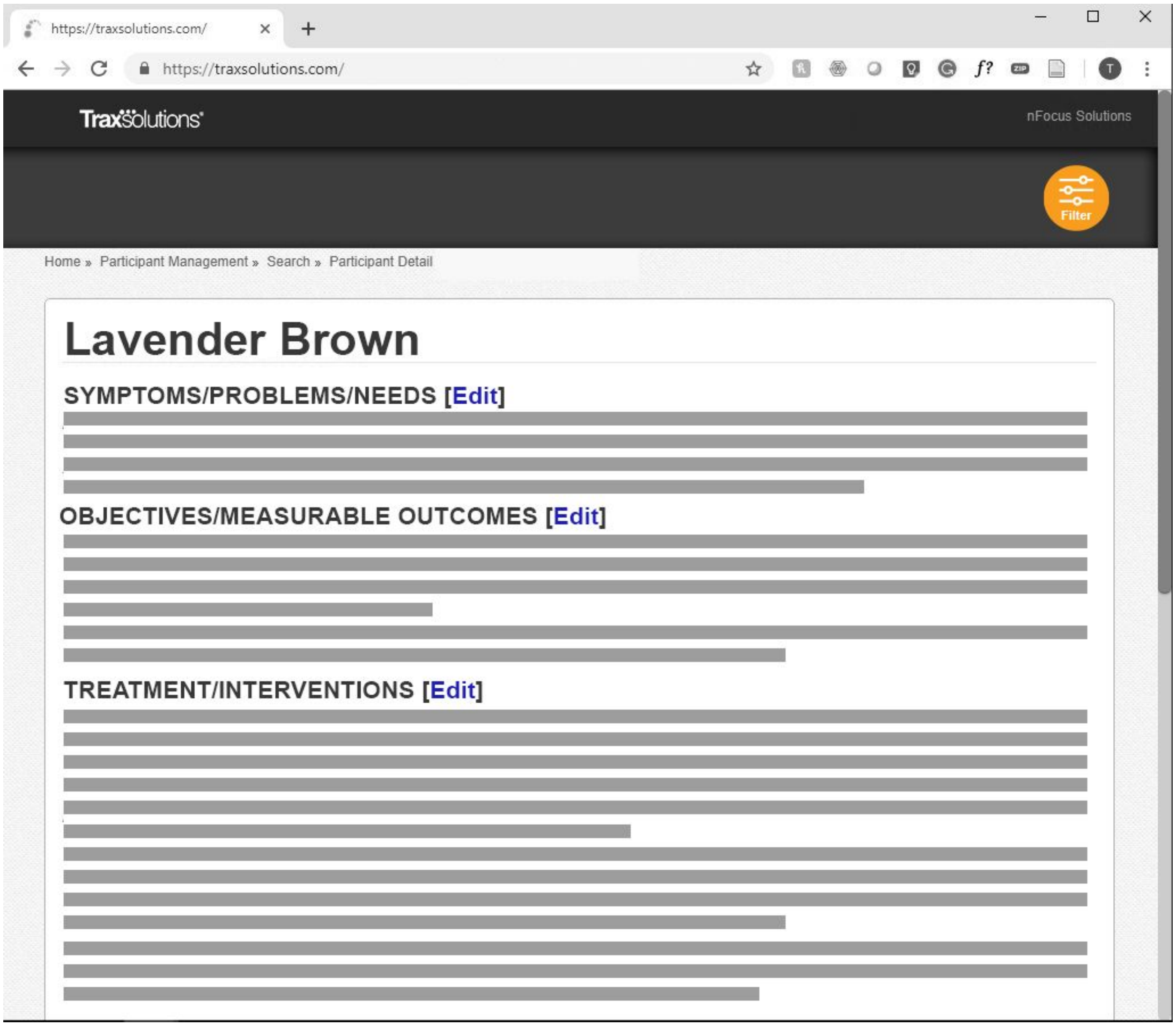
Changes in Psychosocial/ Psychological level of distress: Greater: ____ Less: ✓ None: _____

Changes in physical status: Lavender is gaining weight at a healthy rate.

Reports received/ Ancillary services documented: ______________________

Treatment Plan: Progress toward /modification of goals and objectives, with estimated completion dates: Lavender will learn coping skills, including problem solving and emotional regulation. This will be measured by her demonstrating these skills during therapy sessions and bringing in homework assignments for two weeks that show she practiced them between

A proposed layout of single file for each client is shown below. A button labeled “Filter” with corresponding icon will be placed at the top right corner. The buttons’ locations will be anchored to maintain consistent position on the screen regardless of the user's current view of the form.



6. Next Steps

6.1: Share our research findings & design recommendations with nFocus

Our sponsor, Emily, has invited us to share our learnings and design recommendations with the President of nFocus, Ananda Roberts, during the week of April 17th.

7. Appendix

7.1: Ideas tested during Concept Evaluation

7.1.1: Concept 1: Integrating Analog Case Notes

Concept presented

- A printed case file that can be used during client interaction is scanned and the text is recognized and populated into the nFocus database
- Concept expedites case note data entry and validation to allow staff more time to focus on client interactions.

7.1.2: Concept 2: Audio Recording

Concept presented

- Solution records interaction with client and upload transcript with recording to client's case file
- Enables staff to focus on the client interactions without distraction of taking detailed notes

7.1.3: Concept 3: Sharing of Previous Goals

Concept presented

- Onboarding new client process includes letting them watch video from program alumni stating value of the setting goals
- Allows for the introduction of emotive language from program alumni that grew from same situation as new client

7.1.4: Concept 4: Living Document

Concept presented

- Build the client's story as wiki that an be edited at anytime by any staff member with access to file

- Allows staff to see progress and development in the clients by reading story of interactions