PROJECT DOCUMENTATION
IDEATION PHASE

Define the Problem Statements

Date	4 November 2023
Team ID	NM2023TMID10148
Project Name	How to create a Brand Promo Video using Canva.

Problem Statement:

The task at hand is to produce an engaging and visually appealing promotional video for a specific brand or business using Canva, a popular online design and video editing platform. This video should effectively convey the brand's message, values, products, or services, and captivate the target audience. The main key objectives are

Define the Brand Identity: Clearly understand the brand's identity, including its mission, vision, values, and unique selling points.

Target Audience Analysis: Identify and understand the target audience for the brand, considering demographics, interests, and preferences.

Content Planning: Develop a content plan that outlines the key messages, visuals, and calls to action that need to be included in the promo video.

Storyboard Creation: Create a storyboard or outline of the video's sequence, including the scenes, transitions, and any text or graphics to be incorporated.

Visual Design: Utilize Canva's design features to create or source high-quality visuals, such as images, videos, and graphics, that align with the brand's style and messaging.

Text and Copywriting: Craft compelling and concise copy for any text elements in the video, such as titles, captions, and on-screen messages.

Video Editing: Assemble and edit the video content using Canva's video editing tools, ensuring smooth transitions, music, and any necessary effects.

Branding Elements: Incorporate the brand's logo, colors, and other branding elements consistently throughout the video.

Music and Audio: Select suitable background music or sound effects that enhance the video's mood and message.

Review and Revisions: Review the video multiple times, seeking feedback and making necessary revisions to improve its quality and effectiveness.

Export and Distribution: Once the video is finalized, export it in the appropriate format for the intended distribution channels, such as social media, websites, or email marketing.
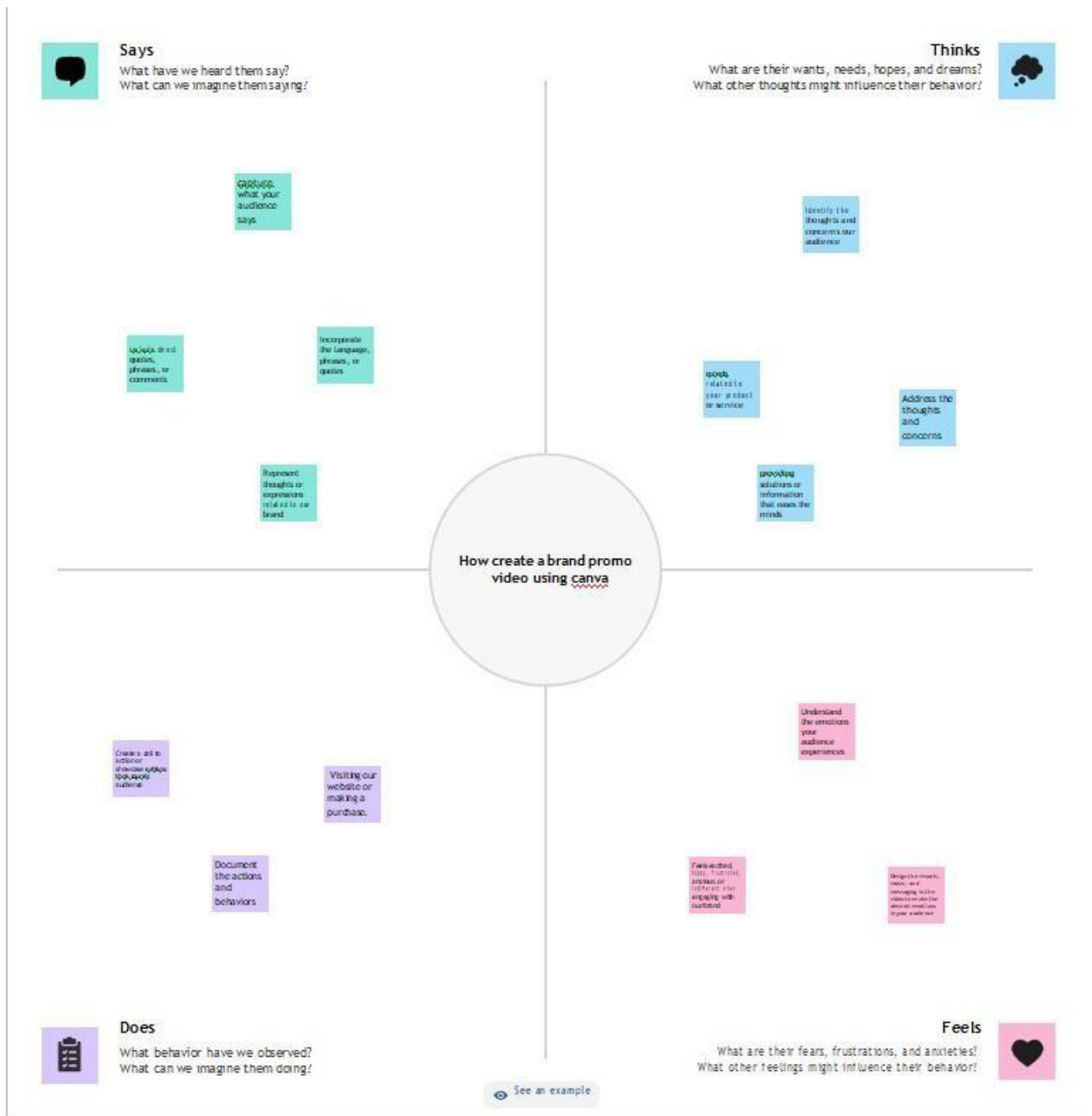
Measuring Success: Define key performance indicators (KPIs) to measure the video's success, such as views, engagement, and conversions, and implement a plan for monitoring and analyzing these metrics.

IDEATION PHASE

Empathize & Discover

EMPATHY MAP CANVAS:

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Says

What have we heard them say?
What can we imagine them saying?

Capture what your audience says

Incorporate the language, phrases, or quotes

Include direct quotes, phrases, or comments

Represent thoughts or expressions related to our brand

Thinks

What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

Identify the thoughts and concerns our audience

Thoughts related to your product or service

Address the thoughts and concerns

Providing solutions or information that eases the minds

How create a brand promo video using canva

Does

What behavior have we observed?
What can we imagine them doing?

Create a call to action or showcase various touchpoints audience

Visiting our website or making a purchase.

Document the actions and behaviors

Feels

What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

Understand the emotions your audience experiences

Feels excited, happy, frustrated, anxious, or different when engaging with ourbrand

Design the visuals, music, and messaging in the video to evoke the desired emotions in your audience

See an example

IDEATION PHASE

Brainstorm & Idea Prioritization Template

Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions. Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Brainstorm
& idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- ⊙ 10 minutes to prepare
- ⧖ 1 hour to collaborate
- ⧑ 2-8 people recommended

Share template feedback

Need some inspiration?

See a finished version of this template to kickstart your work.

Open example →

→

Before you collaborate

A little bit of preparation goes a long way
with this session. Here's what you need
to do to get going.

⏱ 10 minutes

☐ **Team gathering**
Define who should participate in the session and send an
invite. Share relevant information or prework ahead.

☐ **Set the goal**
Think about the problem you'll be focusing on solving in
the brainstorming session.

☐ **Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and
productive session.

[Open article   →]

ⓘ

Define your problem statement

What problem are you trying to solve? Frame your
problem as a How Might We statement. This will be the
focus of your brainstorm.

⏱ 5 minutes

PREMIUM
**How to create a brand
promo video using canva**

⊕

Key rules of brainstorming
To run an smooth and productive session

◉ Stay in topic.   👐 Encourage wild ideas.

😶 Defer judgment.   👂 Listen to others.

👍 Go for volume.   👁 If possible, be visual.

2

Brainstorm

Write down any ideas that come to mind
that address your problem statement.

⏱ 10 minutes

TIP
You can place a sticky note and think (and build) as team [can a can sharing]

Person 1   Person 2   Person 3   Person 4
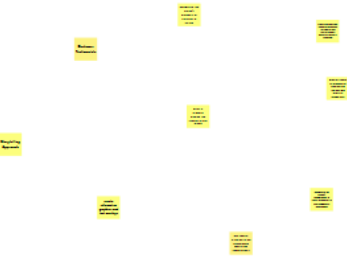
Person 5   Person 6   Person 7   Person 8

3

Group Ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all
sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is
bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

⏱ 20 minutes

TIP
Add sustainable age a sticky note a make a said a the issue organise and assignal highest ideas as themes within your most.
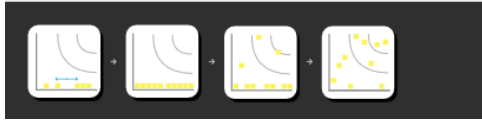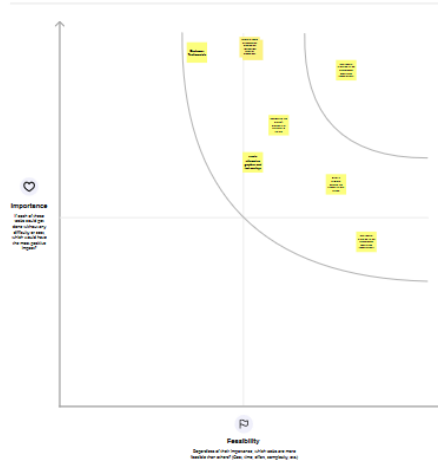
Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

⏱ 30 minutes

Importance
If each of these ideas could be done constantly, efficiently and well, which could have the most positive impact?

Feasibility
Regardless of their importance, which ideas are more feasible than others? (law, time, effort, complexity, etc.)

After you collaborate

You can export the murals as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

Share the mural
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session

Export the mural
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive

Keep moving forward

Strategy blueprint
Define the components of a new idea or strategy
Open the template →

Customer experience journey map
Understand customer needs, motivations, and obstacles for an experience.
Open the template →

Strengths, weaknesses, opportunities & threats
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan
Open the template →

Share template feedback

PROJECT DESIGN PHASE-I

Proposed solution

Proposed solution template:

S.No	Parameter	Description
1	Problem Statement (Problem to be solved)	The task at hand is to produce an engaging and visually appealing promotional video for a specific brand or business using Canva, a popular online design and video editing platform.
2	Idea / Solution description	**Storyboard Creation**: Start by outlining the key points you want to highlight in your promo video. Determine the storyline, key messages, and the visual sequence of your video. **Gather Brand Assets:** Collect all the necessary brand assets, including your logo, brand colors, fonts, images, and video clips that represent your

			brand's identity and products/services.
3		Novelty / Uniqueness	Unleash the power of your brand's story with a one-of-a-kind promotional video using Canva's dynamic features. Our approach focuses on weaving a visual narrative that resonates with audiences on a deeper level. Through a meticulous blend of captivating visuals, seamless design elements, and compelling storytelling, we create a bespoke video experience that encapsulates the very essence of your brand.
4		Social Impact / Customer Satisfaction	Our approach to crafting a brand promo video using Canva is deeply rooted in ensuring an experience that leaves your customers not just informed, but delighted and engaged. We begin by understanding your brand's unique value proposition and the key messages you wish to convey. Using Canva's versatile tools and extensive library of visuals, we meticulously design a video that

		speaks directly to your audience's needs, desires, and emotions.
5	Business Model (Revenue Model)	**Service-Based Pricing:** The primary source of revenue comes from offering video creation services using Canva. The pricing structure may vary based on the complexity of the video, its duration, customization level, and additional services provided.
6	Scalability of the Solution	**Efficient Workflow Standardization**: Establishing standardized workflows for video creation using Canva allows for efficient and consistent production. Templates, predefined styles, and standardized procedures streamline the process, enabling rapid scaling. **Template Utilization:** Canva provides a vast library of customizable templates. Using these templates for various types of brand promos ensures scalability. Repurposing templates

		with minor adjustments significantly reduce production time, allowing for the creation of numerous videos in a shorter period.

PROJECT DESIGN PHASE-I

Solution Architecture

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions.

Step 1: Define the Objective and Message

Clearly outline the purpose of the brand promo video. Identify the core message, target audience, and the key points you want to highlight about the brand or product.

Step 2: Script and Storyboarding

Script Writing: Draft a script outlining the narrative, dialogues, or text that will accompany the video.

Storyboard: Create a visual representation of how each scene will flow. You can sketch this out or use Canva's storyboard templates.

Step 3: Gather Resources

Collect all the necessary resources such as brand logos, images, videos, and any specific text or music that will be part of the video.

Step 4: Using Canva

Access Canva: Log in to your Canva account or create one if you haven't already.

Select Video Template: Choose a video template that best fits your brand and the story you want to tell.

Customization: Modify the template to suit your brand. Use Canva's extensive library of elements to add text, images, animations, and effects.

Storyboard Implementation: Use the storyboard as a guide to arrange scenes and elements in the video editor.

Text and Visual Enhancements: Add text overlays, animations, transitions, and effects to make the video engaging.

Brand Integration: Ensure brand logos, colors, and messaging align with your brand guidelines.

Step 5: Editing and Review

Preview and edit the video to ensure coherence, consistency, and quality. Check for any errors or elements that might need adjustment.

Step 6: Exporting and Distribution

Once satisfied with the video, export it in the desired format. You can choose different formats suitable for various platforms (e.g., Instagram, YouTube, etc.). Ensure it meets the platform's specifications for resolution and size.

Additional Tips:

Music and Sound: Add background music or sound effects to enhance the video's impact.

Voiceover: If needed, consider adding a voiceover to complement the visuals.

Length: Keep the video concise and attention-grabbing. Ideal promo video length varies by platform but generally should be under 2 minutes.
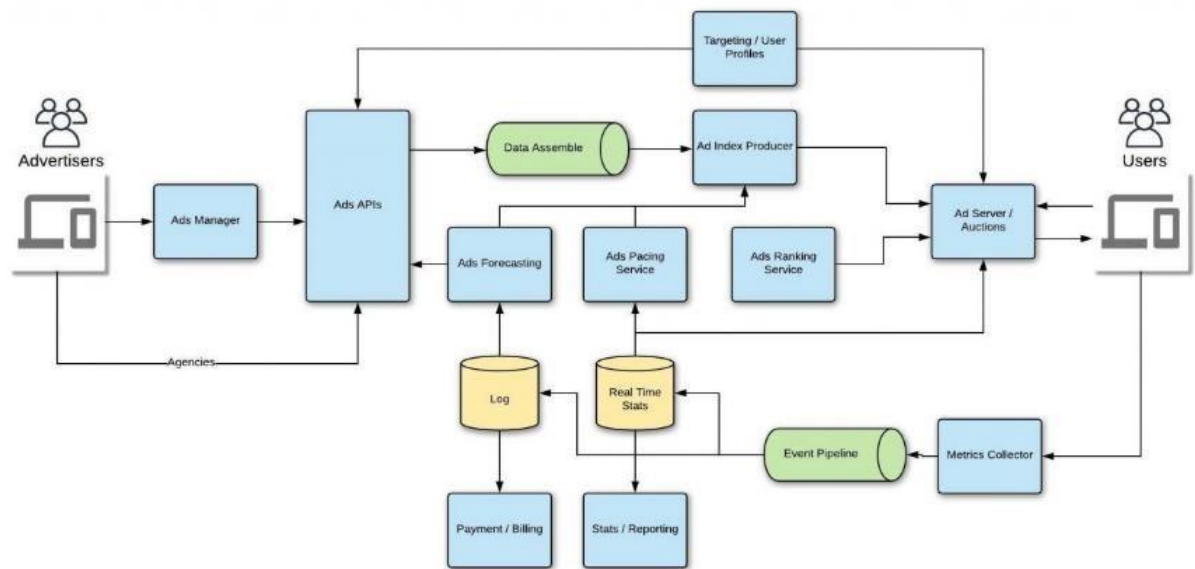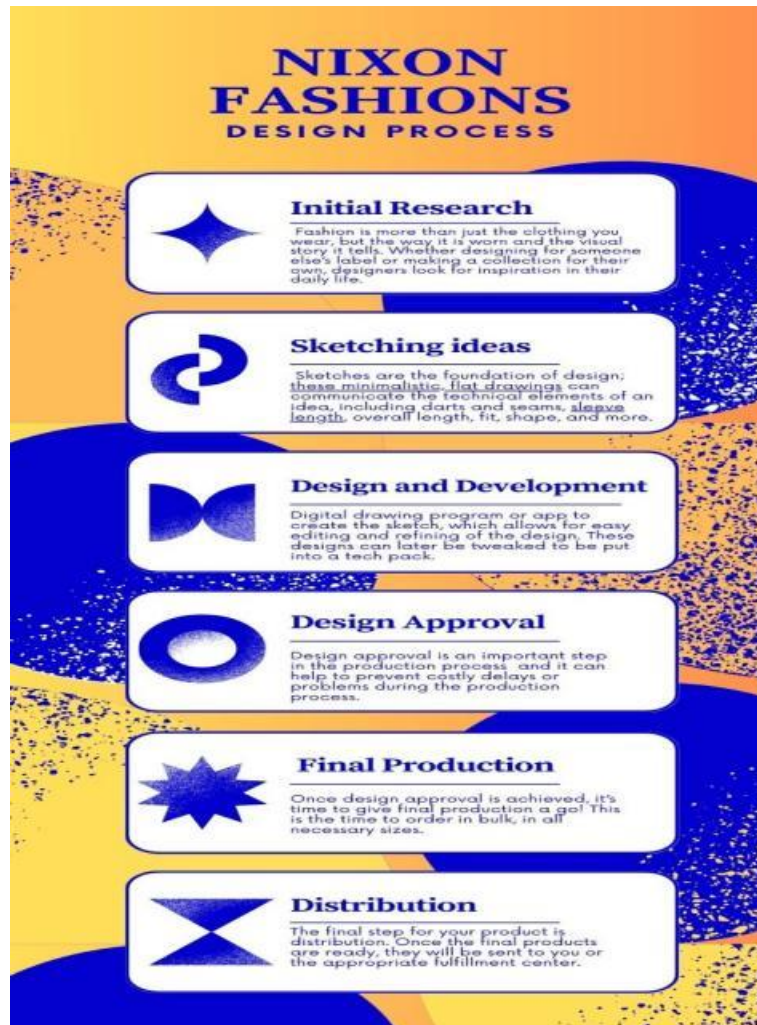
Solution Architecture Diagram:

Figure 1: Architecture to create a Brand Promo Video using Canva.

Project Design Phase-II

Determine the Requirements (Customer journey Maps)

NIXON FASHIONS
DESIGN PROCESS

Initial Research
Fashion is more than just the clothing you wear, but the way it is worn and the visual story it tells. Whether designing for someone else's label or making a collection for their own, designers look for inspiration in their daily life.

Sketching ideas
Sketches are the foundation of design; these minimalistic, flat drawings can communicate the technical elements of an idea, including darts and seams, sleeve length, overall length, fit, shape, and more.

Design and Development
Digital drawing program or app to create the sketch, which allows for easy editing and refining of the design. These designs can later be tweaked to be put into a tech pack.

Design Approval
Design approval is an important step in the production process and it can help to prevent costly delays or problems during the production process.

Final Production
Once design approval is achieved, it's time to give final production a go! This is the time to order in bulk, in all necessary sizes.

Distribution
The final step for your product is distribution. Once the final products are ready, they will be sent to you or the appropriate fulfillment center.

Project Design Phase-II

Requirement Analysis (Functional, Operational, Technical)/Flowcharts

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement(Epic)	Sub Requirement (Story/ Sub-Task)
FR-1	Video Editing Tools:	Canva should provide the necessary tools for video editing, such as trimming, cutting, and merging video clips.
FR-2	Video Templates	Canva should offer pre-designed video templates suitable for brand promotion, allowing users to choose a template that aligns with their brand identity
FR-3	Customization Options:	Users should be able to customize the templates to match their brand colors , fonts, and style.
FR-4	Text Overlay:	The platform should allow to add text overlays to convey brand messages or to highlight key points in the video
FR-5	Image and Video Upload:	Users must be able to upload their brand assets, including images and videos, to be included in the promo video.

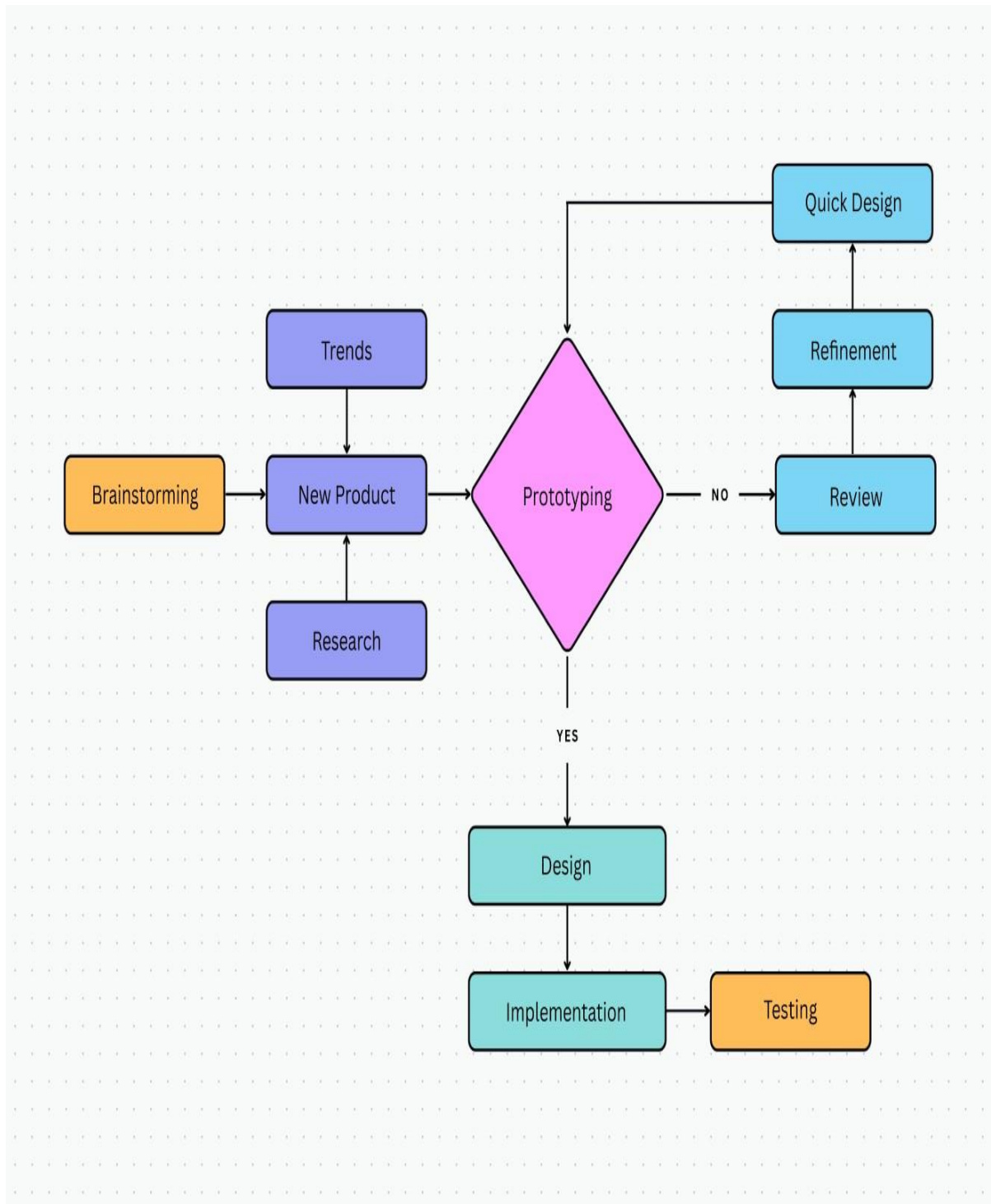**Following are the Operational requirements of the proposed solution**

FR No.	Operational Requirement(Epic)	Sub Requirement (Story/ Sub-Task)
FR-1	User Accounts	Users should have the ability to create and manage individual or team accounts on Canva to collaborate on video projects.
FR-2	Accessibility	Canva should be accessible from different devices and operating systems to accommodate
FR-3	Internet Connection	Users need a stable internet connection to access Canva and work on their brand promo video projects.
FR-4	Software Updates	Canva should regularly update its software to fix bugs, improve performance, and add new features.
FR-5	Security and Privacy	The platform should ensure the securityand privacy of user data and video projects, especially when dealing with sensitive brand assets.

Following are the Technical requirements of the proposed solution

FR No.	Technical Requirement(Epic)	Sub Requirement (Story/ Sub-Task)
FR-1	Compatible Devices:	Canva should support a range of devices, including desktop computers, laptops, tablets, and smartphones, running various operating systems (Windows, macOS, iOS, Android).
FR-2	Browser Compatibility	Canva should be compatible with popular web browsers like Google Chrome, Mozilla Firefox, Safari, and Microsoft Edge to ensure a seamless user experience.

FR-3	Content Delivery	The platform should offer features for easily sharing, downloading, or embedding the final video on different websites, social media, or cloud storage.
FR-4	Mobile Application	Canva should provide a mobile app that is optimized for creating and editing videos on smartphones and tablets.
FR-5	Scalability:	Canva should be able to handle a scalable number of users and projects without significant performance degradation.

Flowchart

```
                                                          ┌──────────────┐
                                                          │ Quick Design │
                                                          └──────────────┘
                                                                  ▲
        ┌────────┐                                         ┌────────────┐
        │ Trends │                                         │ Refinement │
        └────────┘                                         └────────────┘
             │                                                    ▲
             ▼                                                    │
┌───────────────┐      ┌──────────────┐     ◆             ┌──────────┐
│ Brainstorming │ ───▶ │ New Product  │ ──▶ │ Prototyping │  NO ──▶ │  Review  │
└───────────────┘      └──────────────┘     ◆             └──────────┘
                             ▲                    │
                       ┌──────────┐               │ YES
                       │ Research │               ▼
                       └──────────┘         ┌──────────┐
                                            │  Design  │
                                            └──────────┘
                                                  │
                                                  ▼
                                    ┌────────────────┐      ┌─────────┐
                                    │ Implementation │ ───▶ │ Testing │
                                    └────────────────┘      └─────────┘
```

- Trends
- Brainstorming
- New Product
- Research
- Prototyping
- NO → Review → Refinement → Quick Design
- YES → Design → Implementation → Testing

Project Design Phase-II

<u>Technical Architecture</u>

<u>st=>start: Start</u>

<u>op1=>operation: Define Video Objective</u>

<u>op2=>operation: Gather Brand Assets (Images, Videos, Logos)</u>

<u>op3=>operation: Create Canva Account</u>

<u>op4=>operation: Access Canva</u>

<u>op5=>operation: Select Video Template</u>

<u>op6=>operation: Customize Template (Colors, Fonts, Style)</u>

<u>op7=>operation: Upload Brand Assets to Canva</u>

<u>op8=>operation: Arrange and Edit Media</u>

<u>op9=>operation: Add Text and Captions</u>

<u>op10=>operation: Include Background Music or Voiceover</u>

<u>op11=>operation: Apply Transitions and Effects</u>

<u>op12=>operation: Preview and Review Video</u>

<u>op13=>operation: Make Revisions (If Necessary)</u>

op14=>operation: Export Video

op15=>operation: Share Video on Desired Platforms

e=>end: Finish

Project Design Phase-II

Open Source Frameworks

1. **Plan Your Video:**
   - Define the purpose and message of your brand promo video.
   - Create a storyboard or script to outline the content and flow.
2. **Gather Assets:**
   - Collect all the images, videos, logos, and any other media assets you want to include in your video.
3. **Create Graphics and Animations in Canva:**
   - Use Canva to design any static graphics, overlays, or animations you want to include in your video.
   - Canva offers various templates and design elements that you can customize to fit your brand's style.
4. **Editing in Canva:**
   - In Canva, you can create individual frames or slides that will be part of your video.
   - Customize the timing and transitions between these frames to create a visual story.
   - Add text, graphics, and animations to each frame.
5. **Export from Canva:**
   - Canva allows you to export individual frames or the entire project as images or PDFs.
   - Export the frames you've created in Canva.
6. **Use a Video Editing Tool:**

- Import the exported frames, images, and any other assets into a video editing tool.
- Arrange the frames in the desired order.
- Add transitions, animations, and audio as needed.
- You can use free and open-source video editing tools like Shotcut, Lightworks, or DaVinci Resolve.

7. **Add Background Music and Voiceovers:**
- Include suitable background music or sound effects.
- Record and add voiceovers if necessary.

8. **Edit and Fine-Tune:**
- Adjust the video's timing, transitions, and effects to create a seamless and engaging promo video.

9. **Export the Final Video:**
- Export the final video in the desired format and resolution.

Project Design Phase-II

Third Party API Key

1. **Lumen5:** Lumen5 is an AI-powered video creation platform that can convert text content into video. It offers various templates for creating promo videos. While it's not open source, it can be integrated into your workflow.
2. **OpenShot:** OpenShot is an open-source video editing software that you can use to edit and compile videos. You can create graphics and animations in Canva and then import them into OpenShot for video editing.
3. **Blender:** Blender is a powerful open-source 3D modeling and animation software. You can create custom animations and graphics within Blender and then render them as part of your promo video.
4. **HTML/CSS/JavaScript:** If you have web development skills, you can create custom HTML/CSS animations and designs and use JavaScript to compile them into a video format. Libraries like FFmpeg can be used to handle video conversion and rendering.
5. **Scripting Languages:** You can use scripting languages like Python with libraries such as moviepy or FFmpeg to automate video creation and editing processes.

Project Design Phase-II

Cloud Deployment

1. **Content Creation and Design:**
   a. Graphic Design: Use cloud-based graphic design tools like Canva or Adobe Creative Cloud, which offer collaborative features for designing promotional materials.
   b. Video Editing: Cloud-based video editing tools like Adobe Premiere Pro or online platforms like We Video can be used to create promotional videos.

2. **Storage and Collaboration:**
   a. Cloud Storage: Use cloud storage services like Google Drive or Dropbox to store and share promotional assets with your team, ensuring easy access and collaboration.
   b. Collaboration Tools: Tools like Google Workspace and Microsoft 365 provide real-time collaboration on documents, spreadsheets, and presentations.

3. **Marketing and Distribution:**
   a. Email Marketing: Cloud-based email marketing platforms like Mailchimp or HubSpot can help you create and send promotional emails to your audience.
   b. Social Media Management: Use cloud-based social media management tools like Hootsuite or Buffer to schedule and analyze social media posts.
   c. Content Management System (CMS): Deploy a cloud-based CMS, such as WordPress or Shopify, to manage and update your promotional content on your website.

4. **Analytics:**

   a. **Web Analytics:** Use tools like Google Analytics or Adobe Analytics to track website traffic and user behavior to measure the impact of your promo campaign.

   b. **Social Media Analytics:** Leverage built-in analytics provided by social media platforms or use cloud-based social media monitoring tools to track engagement and performance.

5. **Customer Relationship Management (CRM):**

   a. Utilize cloud-based CRM software like Salesforce, HubSpot CRM, or Zoho CRM to manage customer interactions and track the effectiveness of your promo campaign.

6. **A/B Testing and Optimization:**

   a. Cloud-based A/B testing tools like Optimizely or VWO can help you run experiments and optimize your promotional content based on user feedback and data.

7. **Security and Data Protection:**

   a. Ensure that your cloud deployment adheres to security best practices, using encryption and access control to protect sensitive brand assets and customer data.

8. **Scalability:**

   a. Cloud deployment allows you to scale your infrastructure and resources up or down based on demand, ensuring that your brand promo can handle varying levels of traffic and data.

9. **Cost Management:**

   a. Monitor and manage your cloud expenses effectively to avoid overspending. Use cloud cost management tools or services to optimize your budget.

PROJECT DEVELOPMENT PHASE

No. of Functional Features included in the Solution

Functional features:

1. User Authentication: The ability for authorized users to access the Canva platform with the necessary permissions for video creation and editing.

2. Video Creation and Editing Tools: Functionality to create, edit, and assemble video content within Canva, including adding, trimming, and arranging clips.

3. Media Library: A library for storing and organizing images, videos, and audio files to be used in the video.

4. Text and Typography: Features for adding and customizing text overlays, including font styles, sizes, and colors.

5. Graphic Elements: Tools for adding graphics, icons, stickers, and illustrations to enhance the video's visual appeal.

6. Templates and Themes: Access to pre-designed templates and themes tailored for brand promo videos.

7. Transitions and Effects: Options for adding transitions between clips and applying visual effects, such as filters and overlays.

8. Audio Integration: Capability to add background music, sound effects, and voiceovers to the video.

9. Text-to-Speech (TTS): An option for generating voiceovers using text-to-speech technology.

10. Export Options: The ability to export the video in various formats and resolutions suitable for different platforms (e.g., social media, websites).

11. Collaboration and Sharing: Features that allow team collaboration, feedback, and easy sharing of the video project.

12. Mobile Accessibility: Ensuring that Canva's features and functionality are accessible on mobile devices for on-the-go video editing.

13. Integration with Stock Media: Integration with stock photo and video libraries for easy access to licensed media assets.

14. Feedback and Review: Tools for collecting feedback and comments on the video project within Canva.

15. User Support and Help Center: Access to user support resources, tutorials, and a help center to assist users in video creation.

16. Branding Elements: Features to upload and apply the brand's logo, colors, and typography consistently throughout the video.

17. Scheduled Publishing: The ability to schedule the release of the video on specific dates and times.

18. Revision History: A history tracker to view and restore previous versions of the video.

19. Analytics and Performance Tracking: Tools for monitoring the video's performance, including view counts, engagement metrics, and click-through rates.

20. Compliance and Copyright Checks: Built-in checks to ensure that content used in the video complies with copyright and legal requirements.

PROJECT DEVELOPMENT PHASE

Code Layout, Readability and Reusability

Code Layout, Readability and Reusability:

```
from canva.api import CanvaApi

# Replace with your Canva API credentials

API_KEY = 'YOUR_API_KEY'

API_SECRET = 'YOUR_API_SECRET'

# Initialize the Canva API clientcanva_api = CanvaApi(API_KEY, API_SECRET)

# Create a new design

design_response = canva_api.create_design(

    design_type='video',

    name='Brand Promo Video',

    height=720,

    width=1280

)

design_id = design_response['id']

# Add text, images, and other elements to the design

# You can use Canva's Design API to add elements to the design.

# Customize the design elements (text, images, etc.) to create your brand promo content.

# Export the design as a video

video_export_response = canva_api.export_design_as_video(

    design_id=design_id,
```

```
    format='mp4',
    options={
        'resolution': '720p',
        'duration': 10,  # Video duration in seconds
    }
)
# Get the video export URL
video_url = video_export_response['url']
print(f'Your brand promo video is ready: {video_url}')
```
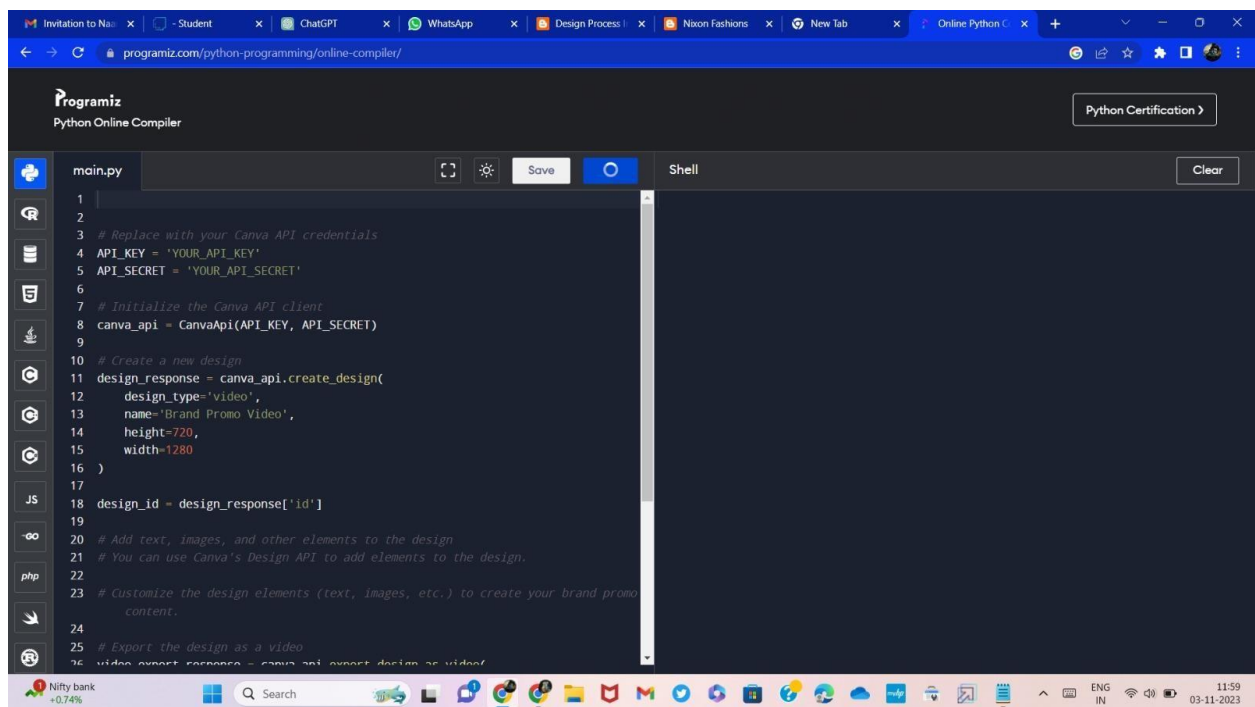
PROJECT DEVELOPMENT PHASE

Utilization of Algorithms, Dynamic Programming , Optimal Memory Utilization

```python
# Replace with your Canva API credentials
API_KEY = 'YOUR_API_KEY'
API_SECRET = 'YOUR_API_SECRET'
# Initialize the Canva API client
canva_api = CanvaApi(API_KEY, API_SECRET)
# Create a new design
design_response = canva_api.create_design(
    design_type='video',
    name='Brand Promo Video',
    height=720,
    width=1280
)


design_id = design_response['id']
# Define your media assets and elements
media_assets = [
    {
        'type': 'image',
        'source_url': 'URL_TO_YOUR_IMAGE',
    'x': 100,
```

```python
        'y': 100,

        'width': 200,

        'height': 100,

    },

    # Add more media assets as needed

]

# Add media assets to the design

for asset in media_assets:

    canva_api.add_design_element(design_id, asset)

# Define your video elements and transitions

video_elements = [

    {

        'type': 'text',

        'content': 'Your Text Here',

        'x': 50,

        'y': 50,

        'font_size': 36,

        'font_color': 'white',

    },

    # Add more video elements as needed

]

# Add video elements to the design

for element in video_elements:

    canva_api.add_design_element(design_id, element)

# Export the design as a videovideo_export_response = canva_api.export_design_as_video(

    design_id=design_id,

    format='mp4',

    options={
```

```python
        'resolution': '720p',

        'duration': 10,  # Video duration in seconds

    }

)

# Get the video export URL

video_url = video_export_response['url']

printf('Your brand promo video is ready: {video_url}')
```

PROJECT DEVELOPMENT PHASE
Debugging & Traceability

Use Logging: Implement comprehensive logging throughout your code to record information about the program's execution. Include log messages for important events, such as API requests and responses, the progress of the video creation, and any errors encountered.

Try-Except Blocks: Surround critical sections of your code with try-except blocks to catch and handle exceptions gracefully. Log error messages with as much detail as possible to help diagnose the issue.

Coding:

```
    # Code that may raise an exception

except Exception as e:

    # Log the exception

    logging.error(f"An error occurred: {str(e)}")

    # Handle the error as needed
```

Testing and Quality Assurance: Develop unit tests and integration tests for your code. This ensures that individual functions and components work as expected and that the entire system operates smoothly. A testing framework like unittest or pytest can be beneficial.

Code Reviews: If you are working in a team, perform code reviews with your peers. Code reviews can help catch issues before they become significant problems.

Version Control: Use version control systems like Git to keep track of changes to your codebase. Create descriptive commit messages to explain the purpose of each change.

Isolate Issues: If you encounter a problem, isolate it to a specific part of your code. Use print statements or debugging tools like pdb to inspect variables and the program's state at that point.

Debugging Tools: Use Python's built-in debugging tools, such as pdb (Python Debugger) or an integrated development environment (IDE) with debugging support.

Set breakpoints in your code to pause execution and inspect variables.

Step through your code to understand its flow.

Error Handling: Implement appropriate error handling mechanisms, and provide clear error messages for easier traceability. Ensure that you handle different types of errors gracefully.

Documentation: Document your code and its dependencies, including the Canva API endpoints you are using, their expected input parameters, and the format of their responses. This documentation will help trace issues related to the API usage.

Traceability Matrix: Create a traceability matrix that maps specific requirements or features to the code components responsible for implementing them. This helps you ensure that all requirements are met and allows for easier problem tracing.

PROJECT DEVELOPMENT PHASE
Exception Handling

Exception handling is a crucial aspect of software development to ensure that your code can gracefully handle unexpected situations and errors. When creating a promo video using a service like Canva through programming, there are various potential exceptions you should consider. Below is a general outline of how you can handle exceptions in such a scenario:

API Access:

Ensure that you have the necessary API keys or access credentials to use Canva's services.

Use proper exception handling to catch authentication errors if your access credentials are incorrect.

API Requests:

When making requests to Canva's API, handle potential network-related exceptions, such as network timeouts or connectivity issues.

Implement error handling to manage unexpected response statuses from the API.

File Handling:

If you are dealing with video or image files in your code, handle exceptions related to file I/O, such as file not found, permission issues, or file format errors.

Check for issues like insufficient disk space if you are saving files locally.

Rate Limiting:

Canva's API may have rate limits to prevent abuse. Implement exception handling to manage rate-limiting errors and retry logic when appropriate.

Invalid Input:

Validate user input to ensure it meets Canva's requirements, such as image dimensions, file formats, or video specifications. Handle exceptions for invalid inputs.

Resource Availability:

Check for the availability of resources like fonts, templates, or design elements before using them in your promo video.

Billing and Subscription:

Handle exceptions related to billing or subscription issues, such as exceeding usage limits or payment failures.

Logging and Reporting:

Implement a logging mechanism to record errors and exceptions. This will help in debugging and identifying issues promptly.

Consider sending notifications or alerts for critical errors so that you can address them in a timely manner.

Graceful Degradation:

When errors occur, strive to provide a graceful degradation of service, allowing the application to continue functioning in some capacity, even if some features are unavailable.

User-Friendly Messages:

Display user-friendly error messages and guidance on how to resolve issues when exceptions occur. Avoid exposing technical error details to end-users.

```
import requests

try:
    # Make a request to Canva's API
    response = requests.get('https://api.canva.com/some/endpoint')
```

```python
        # Check for API response errors
        response.raise_for_status()
      # Process the response
        process_response(response)
except requests.exceptions.RequestException as e:
        # Handle network-related errors
        print(f"Network error: {e}")
except requests.exceptions.HTTPError as e:
        # Handle HTTP errors (e.g., 4xx, 5xx status codes)
        print(f"HTTP error: {e}")
except Exception as e:
        # Handle other unexpected exceptions
        print(f"An unexpected error occurred: {e}")
```

MODEL PERFORMANCE METRICES

➤ Evaluating the performance of the solution for creating a promo video using Canva's API involves measuring various metrics to ensure the system functions effectively. Here are some key performance metrics you can consider:

➤ Execution Time: Measure the time it takes to complete the entire process of creating a promo video, including API requests, file processing, and any other tasks. This metric helps assess the system's responsiveness.

➤ API Response Time: Track the time it takes for Canva's API to respond to your requests. Monitoring this metric is crucial for ensuring that your application doesn't experience significant delays.

➤ Error Rate: Calculate the rate at which errors or exceptions occur during the execution of the application. A lower error rate indicates better stability.

➤ Throughput: Evaluate how many promo videos your application can create in a given time frame. This metric can help assess the system's efficiency and capacity.

➤ Resource Utilization: Monitor the utilization of system resources, such as CPU, memory, and network bandwidth, to ensure that the application doesn't overload the server or local machine.

➤ Concurrency and Scalability: Measure how well the system can handle multiple concurrent requests. Test the system's scalability by gradually increasing the workload and observing its performance.

➤ API Rate Limiting: Ensure that your application stays within Canva's API rate limits. Monitor the number of API requests per minute and adjust your rate limiting and retry strategies as needed.

➤ User Feedback: Collect feedback from users about their experience with the promo video creation process. This qualitative feedback can be valuable for identifying user satisfaction and potential issues.

➤ Logging and Monitoring: Review the application's logs and monitoring systems to identify and address issues proactively. Set up alerts for critical errors or performance degradation.

➢ Cost Efficiency: Evaluate the cost of running your application, considering API usage, storage, and other associated expenses. Ensure that the solution is cost-effective.

➢ Availability and Uptime: Measure the system's availability and uptime. Aim for high availability to ensure users can create promo videos at any time.

➢ User Experience Metrics: Assess user experience metrics, such as load times, user interactions, and any user-specific performance concerns.

➢ Security Metrics: Consider security-related metrics, including the detection of any security vulnerabilities, unauthorized access attempts, and data protection.

➢ Data Integrity: Verify that the promo videos are created accurately, without corruption or loss of data during the process.

➢ Scaling Efficiency: Measure how efficiently the system scales to handle increased workloads. Look for bottlenecks or areas that require optimization.

➢ Automated Testing Coverage: Evaluate the percentage of code covered by automated tests. High test coverage can help identify and prevent regressions.

It's essential to continuously monitor these metrics and perform regular performance testing to identify and address any issues or areas for improvement. As the system evolves and scales, you may need to adapt your performance metrics and optimization strategies accordingly.