Tasks List

Graduate Rotational Internship Program

The Sparks Foundation

Task List

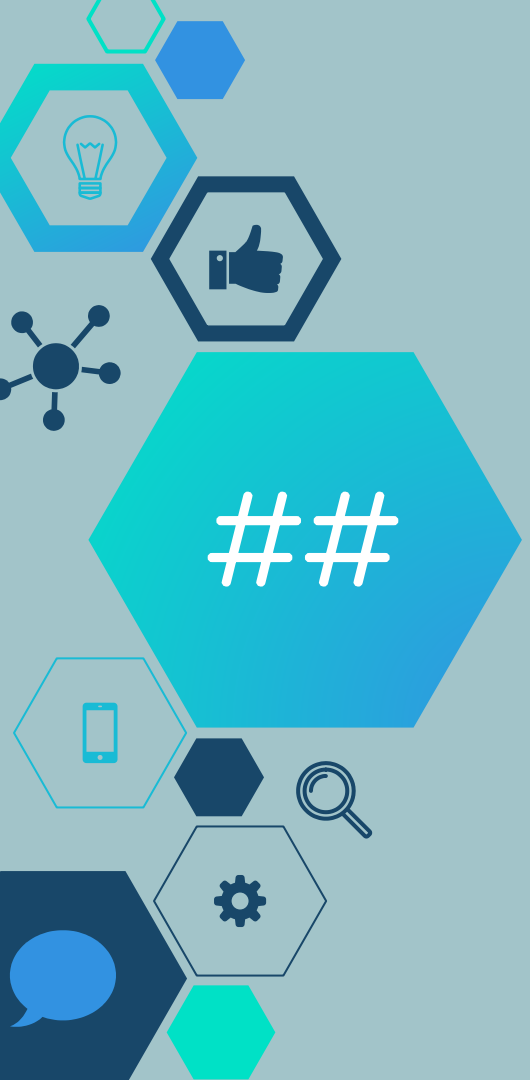
The tasklist contains tasks in the following categories:

- **LinkedIn Profile Improvement** (Mandatory for all)
- **Technology (only for Tech functions)-**
  Web & Mobile Development,
  Data Science & Business Analytics
  Computer vision & IoT
- **Non-Tech (only for Non-tech functions)-**
  Content Development & Digital Marketing, and
  Human Resources & Campus Ambassador

How many tasks to do?

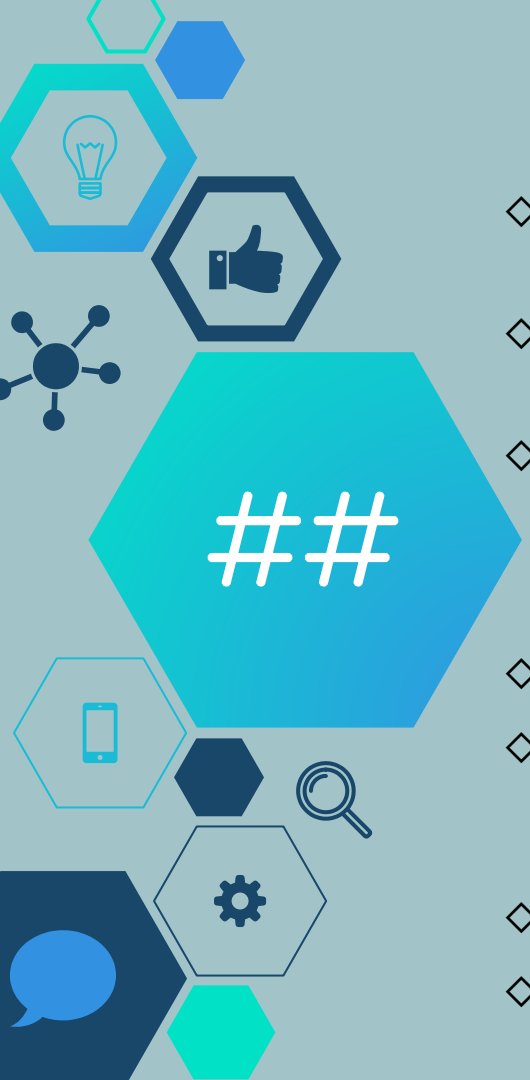
Minimum requirements to be eligible to get an internship completion certificate:

- **LinkedIn Profile Improvement** - Improve your professional profile on LinkedIn. It is MANDATORY FOR ALL.
- **Technology** (only Tech interns)**-** Complete **AT LEAST ONE TASK** from the list of tasks given under your internship function. After that, you can do as many tasks as you want for learning & LoR.
- **Non-Tech** (only non-tech interns)**-** Complete **AT LEAST ONE TASK** from the list of tasks given under your internship function. You can do as many tasks as you want for learning & LoR.
- **Peer-evaluation** (mandatory for all): Watch and comment on the at least 5 task videos on LinkedIn posted by fellow interns. Refer to FAQs for the steps of peer evaluation: https://lnkd.in/gnGiBbb
- **Additional tasks for LoR** (optional)- This will be shared via email. You can also refer to FAQs for this: https://lnkd.in/gnGiBbb



Instructions for all Tasks

- Due to similar nature of skills, some tasks are combined. Example, tasks of Web Development and Mobile App Development are merged into one category - Web & Mobile Development.
- You can do as many tasks you can do from your domain category for your learning & skills development.
- In case of any **query related to tasks**, you can ask in TSF Network. Please refer to section ‘Internship Period & Tasks’ in the F**AQs document**: https://lnkd.in/gnGiBbb
- Your posts in TSF Network needs approval. We may not approve a query which has recently been answered. You are suggested to scroll down or use ‘Search’ to make sure your query is unique in last few days.
- For peer-evaluation (mandatory), please refer to FAQs document.



How to submit the tasks?

◇You need to submit links for content and video of your tasks in the Task Submission Form, except for the LinkedIn task. Form will be shared later.

◇For tech tasks you need to submit code using github/gitlab (public repository). For non-tech tasks, submit links of your work such as Medium or posted poster link.

◇For each task a video needs to be created to showcase your work, demo of your effort (running application and code for tech tasks, and summary and explanation of other non-tech tasks). The video should start with your name on top or first page. **Prefer to include your audio** explaining your work. Please read the FAQs.

◇The video can be hosted on any public place such as Youtube or LinkedIn.

◇And the video can afterwards be shared on **YOUR** LinkedIn, Facebook etc, for a proof of your work and build credibility among your peers. You can tag The Sparks Foundation in such posts. **Do not** post task videos in TSF Network group.

◇**Examples of task videos**: http://bit.ly/3pFyyrs or http://bit.ly/3hAudmx (with audio)

◇To know how to submit peer-evaluation (mandatory) link, please read FAQs document: https://lnkd.in/gnGiBbb

LinkedIn Profile Improvement (Mandatory Task)

#0

- Watch videos and read online articles to see the best practices about improving your LinkedIn Profile
- Read: link1, link2, link3
- Complete your LinkedIn Profile with all details from your resume, e.g. Objective, Education, Projects, Experience, etc..
- Add your professors, friends, seniors, industry leaders, etc. to your connections. Send invitation request to many. This will help you get job later on.
- Look at the connections of your existing network and add others who have reputed profile.
- Optionally, join and connect with: link4, link5, and all other existing members of The Sparks Foundation.

Web & Mobile Development Tasks

Basic Banking System

- Create a simple dynamic website which has the following specs.
- Start with creating a dummy data in database for upto 10 customers. Database options: Mysql, Mongo, Postgres, etc. Customers table will have basic fields such as name, email, current balance etc. Transfers table will record all transfers happened.
- Flow: Home Page > View all Customers > Select and View one Customer > Transfer Money > Select customer to transfer to > View all Customers .
- No Login Page. No User Creation. Only transfer of money between multiple users.
- Host the website at 000webhost, github.io, heroku app or any other free hosting provider. Check in code in gitlab.

Basic Banking App

- Create a simple mobile app which has the following specs.
- Start with creating dummy data in mobile (sqlite) database for upto 10 users. User table will have basic fields such as name, email, current balance etc. Transfers table will record all transfers happened.
- Flow: Home Screen > View all Customers> Select and View one Customer> Transfer Money> Select customer to transfer to > View all Customers.
- No Login Page. No Customer Creation. Only transfer of money between multiple customers .
- Upload video demo of your application on youtube and submit the url.

Payment Gateway Integration

- Create a simple website where payment gateway is integrated.
- There will be a simple donate button on homepage. On clicking the donate button, the user will land on the payment page where user can select the amount to be paid and the payment type, e.g. credit card, Paypal, etc.
- Once the payment is done and invoice will be generated and email will be sent to the user for the payment received. The invoice will contain the amount.
- On any page / email, only basic information is needed.
- Create your own temporary / sandbox / testing accounts with 3rd party for integrations.
- Host the website at 000webhost, github.io, heroku app or any other free hosting provider. Check in code in gitlab.

CI/CD: Cloud Computing

- Read up about AWS or Azure.
- Write up about the steps of setup and essentials of AWS EC2 or Azure VM (one page step by step).
- Create an EC2 or azure VM instance and access it through ssh from your pc over internet.
- In the EC2, deploy and run any application (a website with tomcat/spring boot) or python based project.
- Use at least one service apart from EC2 or VM, i.e. Database service, or MQ, ML, Mobile or any other services provided by AWS or Azure.
- Submit the URL of the application which is running on EC2.
- Your video should show that you are able to run applications on cloud.

Social Media Integration

- Create a mobile app, where user can login through **at least** two social media from such as Facebook and Google.
- After login, display all the details (e.g. Name, profile photo, email, etc.) on the second page.
- Take help of online tutorials and Youtube videos.
- No backend / server side programming required.
- Very good looking UI and responsive UI, which should work for mobiles as well as tablets.
- Clean code is a must.
- Upload video demo of your application on youtube and submit the url.

Testing (Automated)

- Read up about Testing.
- Learn selenium and basic selenium automation scripting.
- Start with Google Search and read tutorials. Watch videos to learn about various aspects of testing using selenium.
- Use selenium to create a test case to test the website thesparksfoundation.sg
- The test script should check of at least 5 pages and 10 elements in total.
- Each element could be e.g. if the Logo exists, the navigation bar appears, the name on about us page is correct, etc.

Data Science & Business Analytics Tasks

Prediction using Supervised ML

(Level - Beginner)

#1

- Predict the percentage of an student based on the no. of study hours.
- This is a simple linear regression task as it involves just 2 variables.
- You can use R, Python, SAS Enterprise Miner or any other tool
- Data can be found at http://bit.ly/w-data
- What will be predicted score if a student studies for 9.25 hrs/ day?
- Sample Solution : https://bit.ly/2HxiGGJ
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on **YOUR LinkedIn profile**, not TSF Network.
  3. Submit the LinkedIn link in Task Submission Form when shared.

Prediction using Unsupervised ML

(Level - Beginner)

#2

- From the given 'Iris' dataset, predict the optimum number of clusters and represent it visually.
- Use R or Python or perform this task
- Dataset : https://bit.ly/3kXTdox
- Sample Solution : https://bit.ly/3cGyP8j
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on YOUR LinkedIn profile
  3. Submit the LinkedIn link in Task Submission Form when shared.
  4. Please read FAQs on how to submit the tasks.

Exploratory Data Analysis – Retail
(Level – Beginner)

#3

- Perform ‘Exploratory Data Analysis’ on dataset ‘SampleSuperstore’
- As a business manager, try to find out the weak areas where you can work to make more profit.
- What all business problems you can derive by exploring the data?
- You can choose any of the tool of your choice (Python/R/Tableau/PowerBI/Excel/SAP/SAS)
- **Dataset:** https://bit.ly/3i4rbWl
- **Beginner Level** - Create dashboards. Screen-record along with your audio explaining the charts and interpretations.
- Task submission:
  1. Create the dashboards and/or storyboard and record it
  2. Upload the recording either on YouTube or LinkedIn
  3. Create a LinkedIn post as suggested in FAQs

Exploratory Data Analysis – Terrorism
(Level – Intermediate)

#4

- Perform ‘Exploratory Data Analysis’ on dataset ‘Global Terrorism’
- As a security/defense analyst, try to find out the hot zone of terrorism.
- What all security issues and insights you can derive by EDA?
- You can choose any of the tool of your choice (Python/R/Tableau/PowerBI/Excel/SAP/SAS)
- **Dataset:** https://bit.ly/2TK5Xn5
- **Intermediate Level** - Create storyboards. Screen-record along with your audio explaining the charts and interpretations. Use images.
- Task submission:
  1. Create the dashboards and/or storyboard and record it
  2. Upload the recording on Youtube, share the link on LinkedIn
  3. Submit LinkedIn post link in Task Submission Form when shared
  4. Please read FAQs on how to submit the tasks.

Exploratory Data Analysis – Sports
(Level – Advanced)

#5

- Perform ‘Exploratory Data Analysis’ on dataset ‘Indian Premier League’
- As a security/defense analyst, try to find out the hot zone of terrorism.
- What all security issues and insights you can derive by EDA?
- You can choose any of the tool of your choice (Python/R/Tableau/PowerBI/Excel/SAP/SAS)
- **Dataset:** https://bit.ly/34SRn3b
- **Advanced Level** - Create storyboards. Screen-record along with your audio explaining the charts and interpretations. Use annotations, animation and images.
- Task submission:
  1. Create the dashboards and/or storyboard and record it
  2. Upload the recording on Youtube, share the link on LinkedIn
  3. Submit LinkedIn post link in Task Submission Form when shared
  4. Please read FAQs on how to submit the tasks.

Prediction using Decision Tree Algorithm
(Level – Intermediate)

- Create the Decision Tree classifier and visualize it graphically.
- The purpose is if we feed any new data to this classifier, it would be able to predict the right class accordingly.
- Dataset : https://bit.ly/3kXTdox
- Sample Solution : https://bit.ly/2G6sYx9
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on YOUR LinkedIn profile
  3. Submit the LinkedIn link in Task Submission Form when shared.
  4. Please read FAQs on how to submit the tasks.

#7

Stock Market Prediction using Numerical and Textual Analysis

(Level – Advanced)

- **Objective:** Create a hybrid model for stock price/performance prediction using numerical analysis of historical stock prices, and sentimental analysis of news headlines
- Stock to analyze and predict - SENSEX (S&P BSE SENSEX)
- Download historical stock prices from finance.yahoo.com
- Download textual (news) data from https://bit.ly/36fFPI6
- Use either R or Python, or both for separate analysis and then combine the findings to create a hybrid model
- You are free to select a **different** stock to analyze and news dataset as well while not changing the **objective** of the task.

Timeline Analysis : Covid-19
(Level – Advanced)

#8

- Create a storyboard showing spread of Covid-19 cases in your country or any region (Asia, Europe, BRICS etc) using **Tableau, Power BI or SAP**
- Use animation, timeline and annotations to create attractive and interactive dashboards and story
- Identify interesting patterns and possible reasons helping Covid-19 spread with basic as well as advanced charts
- Screen-record the completed storyboard along with your audio explaining the charts and giving recommendations.
- Dataset: Daily updated .csv file on https://bit.ly/30d2gdi
- Task submission:
  1. Create the dashboards and/or storyboard and record it
  2. Upload the recording on Youtube, share the link on LinkedIn
  3. Submit LinkedIn post link in Task Submission Form when shared
  4. Please read FAQs on how to submit the tasks.

Computer Vision & Internet of Things

Object Detection / Optical Character Recognition (ORC)

(Level – Beginner)

- Implement an object detector which identifies the classes of the objects in an image or video. OR
- Character detector which extracts printed or handwritten text from an image or video.
- Below resources are just for references you can use any library/approach to achieve the goal.
- Resources: link1 link2
- Task submission:

  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on **YOUR LinkedIn profile**
  3. Submit the LinkedIn link in Task Submission Form when shared with you.
  4. Please read FAQs on how to submit the tasks.

Color Identification in Images
(Level – Beginner)

- Implement an image color detector which identifies all the colors in an image or video.
- Below resources are just for references you can use any library/approach to achieve the goal.
- Resources: link1
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on YOUR LinkedIn profile
  3. Submit the LinkedIn link in Task Submission Form when shared with you.
  4. Please read FAQs on how to submit the tasks.

Social Distancing detector
(Level – Intermediate)

#3

- Implement a real time Social Distancing detector which can identify the distance between two individuals in a crowd.
- Below resources are just for references you can use any library/approach to achieve the goal.
- Resources: link1 link2
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on **YOUR LinkedIn profile**
  3. Submit the LinkedIn link in Task Submission Form when shared with you.
  4. Please read FAQs on how to submit the tasks.

Detection of face mask
(Level – Intermediate)

- Implement a real time face mask detector.
- Below resources are just for references you can use any library/approach to achieve the goal.
- Resources: link1 link2
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on **YOUR LinkedIn profile**
  3. Submit the LinkedIn link in Task Submission Form when shared with you.
  4. Please read FAQs on how to submit the tasks.

#5

Traffic sign classification/Recognition system
(Level – Intermediate)

- Implement a real time traffic sign classifier which identifies the traffic sign and gives an alert.
- Below resources are just for references you can use any library/approach to achieve the goal.
- Resources: link1 link2
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on YOUR LinkedIn profile
  3. Submit the LinkedIn link in Task Submission Form when shared with you.
  4. Please read FAQs on how to submit the tasks.

Fault detection system
(Level – Advanced)

- Implement a Fault Detection System which, detects and eliminates the faulty products based on the shape/colour.
- Please go through the below link for more understanding
- Resources: link1
- Task submission:
  1. Host the code on GitHub Repository (public). Record the code and output in a video. Post the video on YouTube
  2. Share links of code (GitHub) and video (YouTube) as a post on YOUR LinkedIn profile
  3. Submit the LinkedIn link in Task Submission Form when shared with you.
  4. Please read FAQs on how to submit the tasks.

Content Development & Digital Marketing Tasks

Marketing Plan: Social Media

#1

- Create a Marketing Plan for The Sparks Foundation. The plan could include any social media, e.g. LinkedIn, Twitter, Instagram, Facebook etc.
- Read and Understand the various programs at The Sparks Foundation via the website. Explain how the plan should be executed for maximum benefits.
- Write up brief plan (about 5 pages) on how marketing can be done, including how to make it successful. You can use medium.com to write the plan.
- Design a few posts to summarize your plan, and create a slideshow (nice looking) and upload on slideshare or any other public slide sharing website.
- Create an explanatory video to showcase your effort. You could use voice over or typed text to explain your effort.
- Share the job postings of TSF on relevant social media groups
- Please read FAQs on how to submit the tasks.

Content Writing: Small Articles

#2

- Articles on any of the 3 themes: inspire, innovate, integrate
- Read up on internet about your themes and understand the problem people are facing and proposed solutions.
- Write articles with minimum 2-3 pages, including catchy pictures, which is well formatted and mistake-free in your own words. Choose a catchy title, include quotes, references of other articles and stories.
- Post all of the articles online and share us the link. You can use Medium.com as publishing platform.
- Share those articles via LinkedIn
- Summarize your articles in small posts and create a slideshow (nice looking) and upload on slideshare.
- Create an explanatory video to showcase your effort. You could use voice over or typed text to explain your effort.
- Please read FAQs on how to submit the tasks.

Animations / Explanatory Videos

- Read up various programs run by The Sparks Foundation on the website or LinkedIn, or you can just choose GRIP to create an explanatory video of GRIP.
- Signup at Biteable.com, Animaker.com, Powtoons.com or any similar website.
- Create small animations (30 seconds – 1 minute) to explain about the process and/or benefits of the program.
- The explanatory animation could be small but show show that you can create nice looking videos.
- Upload the video on youtube and share the videos on your LinkedIn profile.
- Submit the urls in the Task Submission Form, when shared.
- Please read FAQs on how to submit the tasks.

#4

Poster Design

- Sign-up on Canva.com or any other similar design portal
- Design 3 to 5 Posters of following:
- Poster/Infographics on Education Sector Reforms on any of following themes: inspire, innovate, integrate.
- Poster to highlight the GRIP at The Sparks Foundation and showcase benefits and achievements.
- Be creative and showcase different aspects of the program. Include relevant information to help students signup.
- Post them on various educational and students groups on LinkedIn and Facebook.
- Submit the urls in the end.
- Create a small video of all the posters and publish the video
- Please read FAQs on how to submit the tasks.

Human Resources & Campus Ambassador Tasks

Recruitment Article and Posts

- Different and effective ways of recruiting
- How to get referrals from people on LinkedIn (Please list the steps).
- Write an article with your steps and plan for recruitment using Social Media on Medium.
- Design a few posts to summarize your plan, and share your posts to see response of users.
- Create a slideshow (nice looking) with your posts and upload your slides on slideshare or any other public slide sharing website.
- After a few days, see how was the response to your call for recruiting, and create an explanatory video to showcase your effort. You could use voice over or typed text to explain your effort.
- Please read FAQs on how to submit the tasks.

Job Readiness Article and Posts

#2

- Read online about various things needed for getting hired.
- Read about how to create nice resume, what to include and what not to include.
- Write an article and 5 small posts consisting of your understanding and knowledge of how to be job ready.
- Publish your articles on Medium and share the posts on LinkedIn, along with the link of longer medium article.
- Upload your posts in the slide format to slideshare.
- Create a video to show the responses you have received for your posts on Job Readiness and to show how many people have benefitted from your articles / posts.
- Please read FAQs on how to submit the tasks.

#3

Job Advertisement for GRIP

- Look at the GRIP advertisements done on various platforms.
- Re-write those advertisements creatively based on what others are looking for, in different styles.
- Appeal to different sections based on their interests and write why GRIP would be helpful for them.
- Share your advertisements for GRIP at various places wherever you can reach them and invite people to respond.
- Always include the link of the “Interest Form” and “TSF Network” in your posts.
- After a few days, see how was the response to your ads, and create an explanatory video to showcase your effort. You could use voice over or typed text to explain your effort.
- Please read FAQs on how to submit the tasks.

#4

Expanding TSF Reach

- Help expand TSF by introducing TSF to other entities such as college, training placement cells and other students.
- Find contact person and email of 5 to 10 college placement cells and write emails to introduce TSF to them.
- Find other sources from where your friends can be reached, or other people in your network who would be looking for similar internships.
- Refer all such students and your contacts to TSF and GRIP.
- Create a post by tagging all such people who would be interested and tag The Sparks Foundation (company) also in the same post.
- Create a video of your effort to show who you have contacted and what was the response.
- Please read FAQs on how to submit the tasks.

After all, a job isn't worth doing unless you enjoy it.

Dinah Sheridan

Ask us for help!

- The purpose of the internship is to learn.
- Please ask for help as much as you need.
- We don’t want to dictate you. So it is up to you to seek guidance.
- The tasks given may seem very easy or very difficult. We expect that you give professional due regard to the tasks.
- Best of luck!!

Support the Cause

Please Join Us and Spread the Word about what we are doing. With your help we can reach out to more students...

- FB: https://www.facebook.com/thesparksfoundation.info
- TSF @ LinkedIn: https://www.linkedin.com/company/the-sparks-foundation/
- TSF Network: https://www.linkedin.com/groups/10379184/
- Twitter: https://twitter.com/tsfsingapore
- Instagram: https://instagram.com/thesparksfoundation.info
- Medium: https://medium.com/thesparksfoundation