Hello Faculty,

Thank you for your interest in joining hands with us and promising to deliver a world-class experience by sharing the best knowledge to our learners to become an expert in basic deep learning concepts.

This document will walk you through every process and particulars related to this course. It is recommended that you go through this complete document before you take the first class with us.

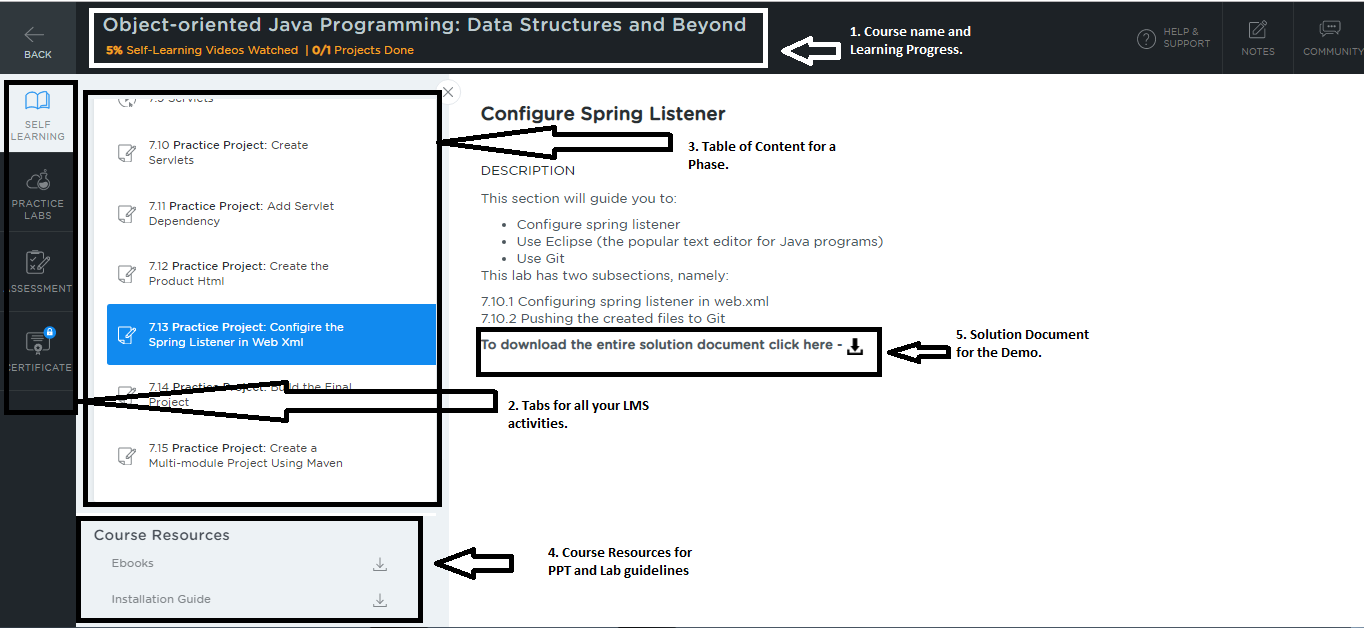
Following are the elements included in this document:

* Vocabulary and LMS Components
* Simplilearn Standards
* Simplilearn’s Way of Delivery
* Knowledge and Skill Sets
* Do’s and Don’ts
* FAQs

**Vocabulary and LMS Components:**

Simplilearn uses a few specific naming conventions that will help you identify the correct resource.

This will help you communicate with us and learners in a better way.



|  |  |
| --- | --- |
| Presentations/PPTxs | These are the PowerPoint presentations of the course. These slides are only available to you. Every slide includes a **trainer note** which will guide you to know exactly what you need to cover in the particular slide. This presentation includes the learning objectives, conceptual slides, assisted and unassisted practice problem statements and steps to perform them, key takeaways, MCQ-based knowledge checks, and lesson-end projects. Please direct the learners to **point 3** if they ask for the same. |
| Assisted Practice/Practice Project/Demo | These are the hands-on practicals expected to be delivered by you. You will find one or more slides in every presentation which will include a problem statement and the next slide will include the steps to perform. A supporting document may be available based on the technology and the requirement for download by clicking the download button as shown in **point 5.** |
| Unassisted Practice | These are the hands-on practicals expected to be performed by the learners under your guidance. You will find one or more slides in every presentation which will include a problem statement and the next slide will include the steps to perform. A supporting document may be available based on the technology and the requirement for download by clicking the download button as shown in **point 5.** |
| Knowledge Checks | These are the multiple-choice questions available in the presentation to check the learner's knowledge based on the concepts taught in the particular class. It is available in the Table of Content as shown in **point 3.** |
| Lesson-end Project | This component is a scenario-based project to be completed by the learners under your guidance. The difficulty of this component is higher than the assisted or unassisted practices. These are non-gradable but we provide the learner the option to send it to us for evaluation and feedback from our **in-house experts/Teaching Assistants.** |
| Phase-end Project | This component is a scenario-based project to be completed by the learners under your guidance. The difficulty of this component is higher than the lesson-end projects. These are gradable available in TOC and will be submitted before the next phase starts. **Learner have to submit this project and is mandatory to move ahead with the program in the next phase. These are available in the Assessment Tab as shown in point 2.** |

**Simplilearn Standards:**

* It is recommended that the slides are used while delivering a conceptual knowledge transfer in the live classes.
* Every slide available in the presentation should be treated as important and shouldn’t be skipped or overlooked.
* The flow of the learning is designed after thorough research and, hence it is mandatory that the learning flow shared should be followed. However, any feedback on the flow changes or content feedback should be shared privately with the Teaching Assistants of the course.
* Every class should start with a recap of the concepts covered in the previous class(es) followed by the concepts to be delivered on the current day and then a Q&A at the end of the class.
* We believe that focus to promote the surveys is as important during the session as it is at the end of the lesson. It will help us analyze the learner’s understanding, your engagement with our learners, the way content is being built and delivered and finally the assistance provided by our Teaching Assistants during online and offline classes.
* Any escalation or misbehavior by the learners should be immediately reported to the Teaching Assistant available for the particular day.
* We believe that the faculty is one of the most important pillars to succeed in any course delivery. Hence, we proactively provide all the required information you need to deliver this course. If you need any more details or assistance, please feel free to contact the Teaching Assistant of the course.
* The materials we provide such as mobile apps, course artifacts, community forums, LMS access and much more to benefit learners and help them learn without any hindrance. We recommend that you promote these materials in every class.
* We have a huge number of learners interacting with each other, trainers, and Teaching Assistants on a daily basis via community forums. We recommend promoting our community forums at the end of every class.

**Simplilearn’s Way of Delivery:**

We have defined a particular set of guidelines to deliver the best sessions to our learners. These delivery guidelines are tailored as per the requirement of the course.

In this course, we use the blended learning model where OSLs, self-paced high-quality videos, are provided to the learners to learn or revise the basics of the technology or frameworks, whereas, the practical implementations are conducted during live virtual classes.

It is important that you familiarize yourself with this model to guide learners effectively. This course has 5 sets of Live Virtual Classes and more than 10 OSLs. The sequential flow and other information is available as pointers which are listed below:

* The Learning Path and the Projects: This sheet will help you with the learning flow and the projects available for the learners.
* The Learning Design: This sheet will help you with a day-wise agenda for each set of live virtual classes. It will help you and the learners know which topics/lessons will be conducted in each day.
* Course Materials: These will be shared with you and includes the following:
  + Presentations
  + Practices: Assisted, Unassisted documents, and lesson-end projects
  + Phase-end projects and its related documents
  + The learning design
  + The learning path and the projects

Now that you are aware of the course components and the standards shared, let’s consider an example to understand how to deliver the live virtual class. Let’s assume that Joe is our faculty in this example.

* Joe will go through the learning design of the particular day to understand and plan the delivery of the number of slides, practices, and Q&A. Joe is clever where he is trying to understand and manage his time for the particular delivery.
* Joe is a man with a plan. As soon as the session begins, he will recap all the important concepts from the previous session. After a quick recap, Joe opens the presentation. If it is the beginning of the lesson, he will follow the sequence mentioned below:
  + Every beginning of the lesson, **You already know** slide is available which sets the expectation with the learners that they should be aware of the skills mentioned on the particular slide. If he finds out that few learners are not yet ready, he reminds them that it is important to have the skills ready else they would face several challenges throughout the training.
  + The immediate slide after **You Already Know** will be the **Recap** slide(s). Joe decides to spend 15 mins on the slide(s) covering the important concepts followed by a short Q&A session to clarify the doubts.
  + If the learners are already aware of the skill set, the next slide will be the project scenario (**A** where Joe will explain to them how they can achieve the project after they complete the training for the day. He is trying to build an impression in front of the learners that this training will be project-driven where the concepts learned will be implemented in the project. That’s a good way to engage the learners throughout the session.
  + The next slide will be about the **Learning Objectives** where Joe will explain to them what they can expect from the particular day’s training.
  + The subsequent slides will have the trainer notes where Joe will act accordingly as instructed. He won’t read the instructions in the class since he is already prepared in advance.
  + After explaining certain concepts, Joe finds out that he has a slide named **Assisted Practice**. He knows that it’s time for practicals. He opens up the word file and follows the instructions. Joe decides to explain the concepts and it’s practical implementations while he is performing the hands-on. That’s why Joe is one of our best trainers.
  + After an **Assisted Practice**, he continues explaining the concepts. He finds out that there is a slide named **Unassisted Practice**. Joe asks learners to try executing the problem statement provided by us on the slide and he will be there to assist them if any issues are found.
  + After the **Unassisted Practice**, he continues explaining the concepts. He approaches towards the end of the presentation where he summarizes and ensures that **key takeaways** are met as expected followed by **knowledge checks.**
  + Since Joe had set the expectation that the learning will be project-driven, Joe explains the **Lesson-end project** slide available at the end to the learners and promises that he will be assisting wherever required within the stipulated time. He links the problem statement with the project scenario discussed earlier.
  + Before he concludes the session, he finds another slide named **Before the next class** where he sets the expectations with the learners that they have to familiarize themselves with the required skills before attending the next slides by reviewing the OSLs.
* Joe is about to conclude the session and quickly wraps the session with a **Q&A.** He knows that though he planned properly there are some areas where he could improve and wants to seek some inputs from the learners if they are willing to add a few things. He requests everyone to fill out the survey on the following parameters:
  + The way Joe conducted the session and his knowledge.
  + The way the platform WebEx helped them during the training.
  + The way content is being built and organized.
  + The way in which the presence of Teaching Assistants made a difference.
* Joe receives the feedback and the comments within 24 hours of the session. He likes the day as his NPS- the NET PROMOTER SCORE increases from **57** to **89**. Joe is happy that he improved while he helped other learners in developing their skills.
* Joe decided that he would continue following this approach throughout the training program.

We hope that you are now able to understand, from the above example, the way each lesson needs to be delivered.

**Knowledge and Skill Sets:**

This section will guide you on the set of skills learners are expected to have before attending a live virtual class. It is mentioned in the sequential flow:

|  |  |  |  |
| --- | --- | --- | --- |
| No. | **Lesson name** | Topic number | Topics/activities |
| 1 | **Course introduction** | 1.1 | Introduction |
|  |  |  |  |
| 2 | **AI and Deep learning introduction** | 2.1 | What is AI and Deep learning |
|  |  | 2.2 | Brief History of AI |
|  |  | 2.3 | Recap: SL, UL, and RL |
|  |  | 2.4 | Deep learning: successes last decade |
|  |  | 2.5 | Demo & discussion: Self-driving car object detection |
|  |  | 2.6 | Applications of Deep learning |
|  |  | 2.7 | Challenges of Deep learning |
|  |  | 2.8 | Demo & discussion: Sentiment analysis using LSTM |
|  |  | 2.9 | Fullcycle of a deep learning project |
|  |  | 2.10 | Key Takeaways |
|  |  | 2.11 | Knowledge Check |
|  |  |  |  |
| 3 | **Artificial Neural Network** | 3.1 | Biological Neuron Vs Perceptron |
|  |  | 3.2 | Shallow neural network |
|  |  | 3.3 | Training a Perceptron |
|  |  | 3.4 | Demo code: Perceptron ( linear classification) (Assisted) |
|  |  | 3.5 | Backpropagation |
|  |  | 3.6 | Role of Activation functions & backpropagation |
|  |  | 3.7 | Demo code: Backpropagation (Assisted) |
|  |  | 3.8 | Demo code: Activation Function (Unassisted) |
|  |  | 3.9 | Optimization |
|  |  | 3.10 | Regularization |
|  |  | 3.11 | Dropout layer |
|  |  | 3.12 | Key Takeaways |
|  |  | 3.13 | Knowledge Check |
|  |  | 3.14 | Lesson-end Project (MNIST Image Classification) |
|  |  |  |  |
| 4 | Deep Neural Network & Tools | 4.1 | Deep Neural Network: why and applications |
|  |  | 4.2 | Designing a Deep neural network |
|  |  | 4.3 | How to choose your loss function? |
|  |  | 4.4 | Tools for Deep learning models |
|  |  | 4.5 | Keras and its Elements |
|  |  | 4.6 | Demo Code: Build a deep learning model using Keras (Assisted) |
|  |  | 4.7 | Tensorflow and Its ecosystem |
|  |  | 4.8 | Demo Code: Build a deep learning model using Tensorflow (Assisted) |
|  |  | 4.9 | TFlearn |
|  |  | 4.10 | Pytorch and its elements |
|  |  | 4.11 | Key Takeaways |
|  |  | 4.12 | Knowledge Check |
|  |  | 4.13 | Lesson-end Project: Build a deep learning model using Pytorch with Cifar10 dataset |
|  |  |  |  |
| 5 | Deep Neural Net optimization, tuning, interpretability | 5.1 | Optimization algorithms |
|  |  | 5.2 | SGD, Momentum, NAG, Adagrad, Adadelta, RMSprop, Adam |
|  |  | 5.3 | Batch normalization |
|  |  | 5.4 | Demo Code: Batch Normalization (Assisted) |
|  |  | 5.5 | Exploding and vanishing gradients |
|  |  | 5.6 | Hyperparameter tuning |
|  |  | 5.7 | Interpretability |
|  |  | 5.8 | Key Takeaways |
|  |  | 5.9 | Knowledge Check |
|  |  | 5.10 | Lesson-end Project: Hyperparameter Tunning With Keras Tuner |
|  |  |  |  |
|  |  |  |  |
| 6 | Convolutional Neural Net | 6.1 | Success and history |
|  |  | 6.2 | CNN Network design and architecture |
|  |  | 6.3 | Demo code: CNN Image Classification (Assisted) |
|  |  | 6.4 | Deep convolutional models |
|  |  | 6.5 | Key Takeaways |
|  |  | 6.6 | Knowledge Check |
|  |  | 6.7 | Lesson-end Project: Image Classification |
|  |  |  |  |
|  |  |  |  |
| 7 | **Recurrent Neural Networks** | 7.1 | Sequence data |
|  |  | 7.2 | Sense of time |
|  |  | 7.3 | RNN introduction |
|  |  | 7.4 | LSTM ( retail sales dataset kaggle) |
|  |  | 7.5 | Demo code: Stock Price Prediction with LSTM (Assisted) |
|  |  | 7.6 | Demo code: Multiclass Classification using LSTM (Unassisted) |
|  |  | 7.7 | Demo code: Sentiment Analysis using LSTM (Assisted) |
|  |  | 7.8 | GRUs |
|  |  | 7.9 | LSTM Vs GRUs |
|  |  | 7.10 | Key Takeaways |
|  |  | 7.11 | Knowledge Check |
|  |  | 7.12 | Lesson-end Project: Stock Price Forecasting |
|  |  |  |  |
| 8 | Autoencoders | 8.1 | Introduction to Autoencoders |
|  |  | 8.2 | Applications of Autoencoders |
|  |  | 8.3 | Autoencoder for anomaly detection |
|  |  | 8.4 | Demo code: Autoencoder model for MNIST data (Assisted) |
|  |  | 8.5 | Key Takeaways |
|  |  | 8.6 | Knowledge Check |
|  |  | 8.7 | Lesson-end Project: Anomaly detection with Keras |
|  |  |  |  |
|  |  |  |  |
|  | **Course-end Project 1** | PUBG Players Finishing Placement Prediction |  |
|  | **Course-end Project 2** | Lending Club Loan Data Analysis |  |

**Do’s and Don’ts:**

* **Do’s:**
  + Start every session with a recap and on time.
  + Encourage learners to ask more questions so that they understand better.
  + Share the industry implementations of the concepts taught in every class.
  + Focus more on covering all the concepts and schedule a Q&A session at equal intervals of time.
  + Use the community forum to interact offline with the learners.
  + Promote Simplilearn’s content, platforms, and mobile applications.
  + Encourage learners to practice assignments and go through the OSL videos before attending the next sessions.
  + Encourage learners to participate in surveys without fail.
* **Don’ts:**
  + Focusing more on answering the questions than covering the concepts.
  + Overlooking the slides or skipping the practicals.
  + Deviating from the suggested flow and tailoring it as per the needs.
  + Pushing the concepts to cover in the next sessions.
  + Extending the classes for more than 4 and a half hours.
  + Rushing to complete the session.
  + Promoting third-party vendors or resources of external bodies.

**FAQs:**

**I have queries regarding the content, whom should I contact?**

You can reach your Teaching Assistant of the category to share your feedback and views.

**Who is my Teaching Assistant?**

Teaching Assistant is a technical personnel who is the point of contact for all course-related issues and feedback. They actively take part in delivering the best experience to our learners by helping them and trainers in the live virtual classes.

**How do I contact my Teaching Assistant?**

Your Teaching Assistant (TA) will contact you as soon as you are onboard. You can request for the extensions/phone number and the official email address to interact with them.

**Will TAs help me in the session?**  
Yes, TAs will help you with any customer, labs, and content-related issues. TAs will be there to assist you online and offline as well.

**What is NPS? How does it affect me?**

NPS is NET PROMOTER SCORE where it is measured with a rating system.

NPS = (Promoters - Detractors)/Total Surveys \* 100.

It affects directly if you receive fewer surveys or if the participants are rating the session as passive or detractors.

**Who are promoters, passives, and detractors?**

Promoters are the learners who rate the session 9 or 10. This indicates that they are happy with the session conducted for the particular day.

Passives are the learners who rate the session 7 or 8. This indicates that they are unhappy with the session conducted today but they could follow you partially.

Detractors are the learners who rate from 0 to 6. This indicates that the session was not up to the mark and needs a lot of improvement.

**Should I follow the instructions?**

Yes, these recommendations are tried and tested. It helped other trainers improve their NPS and we are sure that it will help you as well.

**Can I be creative?**

Yes, as long as you’re trying to explain the concepts with visual aids such as Epic pen, UML diagrams, and so on.

**I want to share some files with the learners. How do I do it?**

You can use our community forum. You can upload the files and then share the forum link in your classes.

**Can I share my contact details with the learners?**

No. We strictly avoid sharing trainer details with the learners. Our community forum is sufficient enough where learners can message you privately and discuss offline.

**I need more resources. Whom should I contact?**

Please feel free to contact the TAs of the course. ‘

We wish you all the best for your upcoming training with us. Thank you for taking the time to read this comprehensive document.

Please contact your Teaching Assistants for further assistance and information.