**Questionnaire**

Dear Respondent:

This Questionnaire is from Binit Kumar, a Final Year Degree (B.Tech) student from Asia Pacific Institute of Information Technology. He is currently doing a final year project titled **Beacon** (Hi –Tech Marine Loading and Path Detection). The Purpose of the Beacon is to create a advanced algorithms to reduce the complexity in shortest route finding and best container loading in the ships. These problems are identified as Travelling Salesman Problem and Container Loading Problem. It is very difficult to find a optimized path for travelling using any approach and still the problem is unsolvable. Beacon can simplify the complexity with its approach that can be further used by various logistics and other companies. Likewise, Beacon also results in reduction of complexity in CLP. It generated the most optimized way to load container based on weight and dimensions. Both Algorithms results into cost and time benefits for the enterprise and help in fast and accurate processing through advanced genetic and other algorithmic approach.

For that reason, the purpose of this research is to provide a intelligent algorithm and application, which can help developer understanding the working of the marine system or any logistics planning .Also the developer can gets a data about the interest and other parameter of the solution about the domain .Critical Analysis can be done on approach of solution and feature set required within the algorithm and other mathematical and calculation aspects.

The developer appreciates your time to respond to this set of questionnaire. The questionnaire should take no longer than 15 minutes to complete. Your answers are of the great importance to the success of this study all your responses will be held strictly in confidential and complete anonymity as the developer will follow the guidelines of the Ethical Form.

Thank you for your participation.

**Questionnaire**

**Beacon- Marine Loading and Path Detection**

**Instructions:-**

The following questionnaire sections will help the developer to estimate about the project. It is important that you answer all applicable questions thoroughly.

**Section A:**  This section is optional; you may fill in your company Contact Details

**Section B:**  Check the most suitable options from the questions below, you make check more than one options based on the requirements.

**Section B:**  This section is more domains specific and it is not mandatory to attempt/ answer all the questions.

**Section D:** Feel free to share your views / suggestions and help us understand the basic requirements

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| **Section – A** | | |
| **PERSONAL INFORMATION** | | |
| Name (optional ) | |  |
| Designation | |  |
| Organization | |  |
| Contact Number | |  |
| Email | |  |
| Company Address | |  |
| **Section – B** | | |
| **NEW USER (who doesn’t use any software)** | | |
| Question 1 | What is your Job Profile or designation in the enterprise?  route planner  load planner  Higher Management  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | This is primary question to identify the staff and worker related to enterprise and the can be related o the response in the other questions. | |
| Question 2 | Do you have used any tool for route map/load planning?  Yes  No  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | This question is asked to new user to check the knowledge about the software. In small companies it is seen that people don’t know there can be software like this to help them. | |
| Question 3 | Do you feel like having need of any software that can reduce complexity in the planning process?  Yes  No  Any other, Specify\_\_\_\_\_\_\_\_\_ | |
| Justification | The question sees the user expectation, or need in the market. Since planning is very complex, it is expected to see the user response on the new software that makes problem solve in seconds. | |
| Question 4 | How much time does it take to plan a route map?  In Seconds  In minutes  In hours  Can’t Say | |
| Justification | To get a average amount of time taken by an algorithm. This question gives a data of the speed of the existing system and the average of time taken by the problem in the existing system. | |
| Question 5 | Do you believe software can result into cost benefit and time benefit for the organization?  Yes  No  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | It is asked to verify the rationale of the system in terms of cost benefits and time benefits. A successful cost cutting and time cutting is the prime target of the application and this concept is validated by the user’s perspective | |
| Question 6 | What are the numbers of consignment you send per day on average?  Less than 50  less than 100  More than 100  Less than 1000 | |
| Justification | Questions ask the amount of consignment moved by the company on daily basis. It will be used for further to design the application and its speed in order to solve the average amount of time | |
| Question 7 | Have you ever faced a highly complex and unsolvable route map/ container loading scenario?  Pretty Much  Sometime  Never  Other Please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | The question is asked to find out the average of the complexity and unsolvable problem arises before the manual system. Most of the places where these system are not applied, how problematic they find this scenario. | |
| Question 8 | Do you solely responsible for the decision in the planning process?  Yes  No, we work in team  Yes but require approval from higher management  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | This is asked to determine the work flow of the organization. If there is single administrator a standalone desktop application would be sufficient. A group planning can never be done without the online or network shared application. | |
| Question 9 | What type of problem do you usually face while planning for route or loading?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | The question has no predefined options , it focuses on the customer perspective and the personal view on the problem solving approach . | |
| Question 10 | IF you ever tried using some software, Tell the reason or disadvantages of not using it ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | The question targeted to conclude the disadvantage, problem context and the complexity within the system that affects users to not use it. Most of the people find it hard to learn or manage and they have their own view and assumptions. | |
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| **EXISTING USER**( who have used some software of this kind) | | |
| Question 1 | What is your Job Profile or designation in the enterprise?  route planner  load planner  Higher Management  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | This is primary question to identify the staff and worker related to enterprise and the can be related o the response in the other questions. | |
| Question 2 | Which of the following tool you use for route planning?  Google Map  Custom made tool  TSP solver  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | Asked to take account the popularity and usability of the different route planning application available in the market. Google map is pretty good but can’t solve the analytical way. | |
| Question 3 | Which tool you use for load planning?  2D/3D Load Packer  Container Load Simulator  packVol  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | This question is asked to see the popularity of a application , so that the features and methods can be researched and applied in the current project . | |
| Question 4 | How did you find using software/tools for route map and loading for novice users?  Easy  Average  Hard  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | To find the usability and the training on the software , Its varies from novice to expert , but for a general it is taken into account , how hard is to use this kind software by professionals | |
| Question 5 | How much time does the software takes to create a final plan ( from entry to final result ) ?  In seconds  In Minutes  In Hours  one day | |
| Justification | It accounts the average time to solve the problem or loading, this includes basically the time of entry and time taken by algorithm to reach the optimize solution. Time complexity of the algorithm is always prime issue .Developer use theta (notation to find the final time of the algorithm. | |
| Question 6 | Do you need software with excel data entry and language support feature?  Yes  No  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | The additional feature in the application gives it a success star. Excel sheet and language support are one of the very important feature available in any software today | |
| Question 7 | Is there any feature that use backtracking and editing on the previous planned data?  Yes  No  Any other, Specify\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | This is regarding the manual customization after the plan is generated. Most of the application does not allow for customization on the application generated plan. This question gives the account of need of this feature. | |
| Question 8 | What is the format of Final Plan result file?  Image  pdf  doc  Any other, Specify\_\_\_\_\_\_\_\_\_ | |
| Justification | Portability of the final plan is done through this. Automatic document generation feature , how much it will be useful . This also represents the use of a single software that can work within the work break structure of the organization. | |
| Question 9 | Are you satisfied with the quality of software you are using?  Very dissatisfied  Satisfied  Quite satisfied  Needs Improvement | |
| Justification | This question is asked as the feedback of the application they are using, the features are more than enough and same as this project. Satisfactory level give arise to demand and usefulness of the project. | |
| Question 10 | What are changes required in the software .Write if you have any suggestion about the software?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| Justification | To get new ideas and the bugs and changes required to the new system. It focus on problem statement of the new existing system. Also the valuable suggestion by the regular user is get to know . | |

Interview Questions (Algorithms)

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| # | Questions |
| 1. | Is there any known solution that makes problems like TSP and CLP solvable and verifiable in polynomial time? |
| Justification | To determine the approach of solving that is not known to the researcher |
| 2. | What are the approaches we can use for solving TSP and CLP? |
| Justification | To develop a matrix of the different approaches to solve the specified problem and then conclude the best suited approach of solving and applying in FYP. |
| 3. | Why genetic algorithm is best suited? What are the advantages? |
| Justification | To know the advantage of using genetic algorithm and the complexities include within it. |
| 4. | What are the major parameters and logics need to cover for implementing CLP? |
| Justification | To map the real world problem into genetic programming, one should the real constraints and logics to implement it. This question discuss the scenario and the solution approach |
| 5. | How algorithms is key changing and how it affecting the world? |
| Justification | This is common question on algorithms and how it is beneficial and key changing events in the modern world. It is asked for concluding the importance and showcases the experience of the interviewee. |