Chapter 1 : Chapter How to Emcee an Event, Introduce Speakers, and Present Awards

Calling another program in C++ and directing the program flow. C / C++ Forums on Bytes.

In this article we will learn about control statements that are available in Python language. Introduction In this article we will learn about control statements that are available in Python language. It is very important to control the program execution because in real scenarios the situations are full of conditions and if you want your program to mimic the real world closer then you need to transform those real world situations into your program. For this you need to control the execution of your program statements. This article is all about controlling the program execution sequence. It is commonly known as control flow in programming terms. Understanding the control flow As the article is focusing on control flow tools , it is must for us to understand these terms before we use them. The first word is control that simply means controlling. We are getting the different behavior by controlling some aspects of the behavior. Now it comes to flow,Flow is just a way or sequence of program execution. By default every statement of program is executed one by one in an order they appear in a program code. When we combine the above two words we get control flow,That simply means controlling the flow of program execution to get desire behavior or result. Using control flow we are controlling the statement execution, Now program will no longer be executing in sequence, the execution is controlled by control tools. In that acase we need to skip the retrieve program code and that is control flow. Control flow tools in python Python provide various tools for flow control. Some of them are if , if.. If â€" If this is the case then do this This control statement indicate that if something happens then do this. An if block can be followed by zero or any number of else block. Use of colon ": Python uses colon and indentation for defining the scope or code block. So if you are getting an error like the following picture then correct your code indentation. The else block is optional and one if can have any number of else blocks. Basically that statement can replace switch statement. You can put any number of elif blocks after if and else block is optional. In traditional style for loop we have one variable which iterates over a sequence and we can change the value of sequence and variable as well but in modern for loop we have iteration variable that iterates over a fixed sequence. We can not change the sequence as well as iteration variable during iteration. Using range Sometimes it is required that we just want to iterate over number sequence like 1,2,3,4,â€¦ To solve this purpose python provides range function which generate the arithmetic progression with number of terms equal to the parameter passed in it. We have 3 variations of range function. One take only Syntax:

Chapter 2 : Python Basics: Understanding The Flow Control Statements - CodeProject

Programming in C#: Managing Program Flow Overview/Description Target Audience Prerequisites Expected Duration Lesson Objectives Course Number Expertise Level Overview/Description Microsoft Visual C# is a principal development language for theinnatdunvilla.com framework.

In addition to possessing the right skillset to direct television, it is imperative to develop strong and lasting relationships with industry decision makers. With the support of nearly 30 DATG live-action series, the directing program has attracted an array of professionals with varying backgrounds including Assistant Directors, grips, music video directors, commercial directors, actors such as Regina King Amercian Crime and Kimberly McCullough General Hospital , as well as award-winning feature director Ryan Coogler Creed. It has exposed me to an impressive, inspiring group of industry professionals and provided opportunities to promote myself, as a director, in television executive offices as well as on set. The primary goal of this program is to afford Program Directors access to develop relationships with DATG executives and productions. Shadowing assignments are not guaranteed; however, if an assignment is secured, the program director will shadow production and shooting. Observing post-production is solely at the discretion of producers. Drama assignments typically run three or more weeks, and comedy assignments usually run one to two weeks. During the submission period, please refer to the posted application for definitive guidelines. Applicants must be able to legally work in the United States and be at least 21 years of age. Material must be directed by a single director. Material directed by directing teams will not be accepted. Previous professional experience working in television production is strongly preferred, but not required. Past participants who entered the program with television production experience e. Those applying must submit a completed application and the following. Applicants can list projects officially selected at major film festivals but please exclude the following: Please refer to the detailed application instructions made available during the open submission period for the essay question. The application essay question may vary each submission period. Letters from representatives e. Letters must be on either corporate or personal letterhead with a name, contact information, and dated in the current calendar year. It is recommended that those signing recommendation letters include either a title or a brief introduction indicating their position or affiliation. Recommendation letters must be included with your application. Please read the FAQs for additional information and details. Specific dates vary from year to year. Follow us on Facebook to receive updates and alerts about the submission period. The application is only available during the open submission period. Applications will not be accepted prior to the submission period opening date and submissions MUST be submitted no later than Material should tonally translate to the type of programming broadcast on DATG. Qualifying bodies of work include, but are not limited to: Compilation clip reels are accepted, but not recommended. All submissions must be final, sweetened cuts. The extensive criteria for judging material includes: Please check our Facebook page for announcements regarding individuals selected to join the directing talent pool. Typically directors are selected no later than the end of June; however selection timelines may vary year to year.

Chapter 3 : Learn C (Introduction and Tutorials to C Programming)

Your code as a whole will will always express all the conditional (if/else) logic you have. But what you want to do is to have those questions dealt with separately, rather than all in one big block. For example, the question of whether a PIN number is valid is the responsibility of a class that validates PIN numbers.

But where and how your order is executed can impact the overall costs of the transaction, including the price you pay for the stock. When you push that enter key, your order is sent over the Internet to your brokerâ€"who in turn decides which market to send it to for execution. A similar process occurs when you call your broker to place a trade. While trade execution is usually seamless and quick, it does take time. And prices can change quickly, especially in fast-moving markets. Because price quotes are only for a specific number of shares, investors may not always receive the price they saw on their screen or the price their broker quoted over the phone. By the time your order reaches the market, the price of the stock could be slightly â€" or very â€" different. No SEC regulations require a trade to be executed within a set period of time. But if firms advertise their speed of execution, they must not exaggerate or fail to tell investors about the possibility of significant delays. Your Broker Has Options for Executing Your Trade Just as you have a choice of brokers, your broker generally has a choice of markets to execute your trade: For a stock that is listed on an exchange, such as the New York Stock Exchange NYSE , your broker may direct the order to that exchange, to another exchange such as a regional exchange , or to a firm called a "third market maker. As a way to attract orders from brokers, some regional exchanges or third market makers will pay your broker for routing your order to that exchange or market makerâ€"perhaps a penny or more per share for your order. This is called "payment for order flow. Many Nasdaq market makers also pay brokers for order flow. Your broker may route your order â€" especially a "limit order" â€" to an electronic communications network ECN that automatically matches buy and sell orders at specified prices. A "limit order" is an order to buy or sell a stock at a specific price. This is called "internalization. That means your broker must evaluate the orders it receives from all customers in the aggregate and periodically assess which competing markets, market makers, or ECNs offer the most favorable terms of execution. Other factors include the speed and the likelihood of execution. Of course, the additional time it takes some markets to execute orders may result in your getting a worse price than the current quote â€" especially in a fast-moving market. You Have Options for Directing Trades If for any reason you want to direct your trade to a particular exchange, market maker, or ECN, you may be able to call your broker and ask him or her to do this. But some brokers may charge for that service. Some brokers offer active traders the ability to direct orders in Nasdaq stocks to the market maker or ECN of their choice. SEC rules aimed at improving public disclosure of order execution and routing practices require all market centers that trade national market system securities to make monthly, electronic disclosures of basic information concerning their quality of executions on a stock-by-stock basis, including how market orders of various sizes are executed relative to the public quotes. These reports must also disclose information about effective spreads â€" the spreads actually paid by investors whose orders are routed to a particular market center. In addition, market centers must disclose the extent to which they provide executions at prices better than the public quotes to investors using limit orders. These rules also require brokers that route orders on behalf of customers to disclose, on a quarterly basis, the identity of the market centers to which they route a significant percentage of their orders. You can also write to your broker to find out the nature and source of any payment for order flow it may have received for a particular order. And then consider that information in deciding with which firm you will do business.

Chapter 4 : Design Flowchart In Programming (With Examples) - Programiz

Before getting started with C programming, lets get familiarized with the language first. C is a general-purpose programming language used for wide range of applications from Operating systems like Windows and iOS to software that is used for creating 3D movies.

Several programming languages e. Scala has for-expressions , which generalise collection-controlled loops, and also support other uses, such as asynchronous programming. Haskell has do-expressions and comprehensions, which together provide similar function to for-expressions in Scala. Where a more specific looping construct can be used, it is usually preferred over the general iteration construct, since it often makes the purpose of the expression clearer. Infinite loop Infinite loops are used to assure a program segment loops forever or until an exceptional condition arises, such as an error. For instance, an event-driven program such as a server should loop forever, handling events as they occur, only stopping when the process is terminated by an operator. Infinite loops can be implemented using other control flow constructs. Most commonly, in unstructured programming this is jump back up goto , while in structured programming this is an indefinite loop while loop set to never end, either by omitting the condition or explicitly setting it to true, as while true Some languages have special constructs for infinite loops, typically by omitting the condition from an indefinite loop. Examples include Ada loop Often, an infinite loop is unintentionally created by a programming error in a condition-controlled loop, wherein the loop condition uses variables that never change within the loop. Continuation with next iteration[edit] Sometimes within the body of a loop there is a desire to skip the remainder of the loop body and continue with the next iteration of the loop. Some languages provide a statement such as continue most languages , skip, or next Perl and Ruby , which will do this. The effect is to prematurely terminate the innermost loop body and then resume as normal with the next iteration. If the iteration is the last one in the loop, the effect is to terminate the entire loop early. Redo current iteration[edit] Some languages, like Perl and Ruby, have a redo statement that restarts the current iteration from the start. Ruby has a retry statement that restarts the entire loop from the initial iteration. Early exit from loops[edit] When using a count-controlled loop to search through a table, it might be desirable to stop searching as soon as the required item is found. Some programming languages provide a statement such as break most languages , Exit Visual Basic , or last Perl , which effect is to terminate the current loop immediately, and transfer control to the statement immediately after that loop. The following example is done in Ada which supports both early exit from loops and loops with test in the middle. Both features are very similar and comparing both code snippets will show the difference: Text IO; with Ada. Some languages support breaking out of nested loops; in theory circles, these are called multi-level breaks. One common use example is searching a multi-dimensional table. This can be done either via multilevel breaks break out of N levels , as in bash [6] and PHP, [7] or via labeled breaks break out and continue at given label , as in Java and Perl. C does not include a multilevel break, and the usual alternative is to use a goto to implement a labeled break. Rao Kosaraju refined the structured program theorem by proving that it is possible to avoid adding additional variables in structured programming, as long as arbitrary-depth, multi-level breaks from loops are allowed. There are other proposed control structures for multiple breaks, but these are generally implemented as exceptions instead. Watt notes that a class of sequencers known as escape sequencers, defined as "sequencer that terminates execution of a textually enclosing command or procedure", encompasses both breaks from loops including multi-level breaks and return statements. As commonly implemented, however, return sequencers may also carry a return value, whereas the break sequencer as implemented in contemporary languages usually cannot. Loop variants are used to guarantee that loops will terminate. A loop invariant is an assertion which must be true before the first loop iteration and remain true after each iteration. This implies that when a loop terminates correctly, both the exit condition and the loop invariant are satisfied. Loop invariants are used to monitor specific properties of a loop during successive iterations. Some programming languages, such as Eiffel contain native support for loop variants and invariants. Loop sublanguage[edit] Some Lisp dialects provide an extensive sublanguage for describing Loops. An early example can be found in

Conversional Lisp of Interlisp. Common Lisp [15] provides a Loop macro which implements such a sublanguage. Loop system cross-reference table[edit] It has been suggested that this article be split into a new article titled Comparison of programming languages control flow.

Chapter 5 : C Programming/Program flow control - Wikibooks, open books for an open world

*This C Program calculates the mean, variance & standard deviation. The formula which is used in this program are mean = average of the numbers. variance = (summation((Xi - average of numbers) * (Xi - average of numbers))) / Total no of elements. where i = 1 to N here N is the total no of elements.*

There is quite a bit of drawing to do in addition to writing the legend in the symbols. The pseudocode is quite simple by comparison so why would you use flow charts? The major reasons are that the flow chart. What must you do to draw well-drawn flow charts? Here are a few rules: This can vary with loops which need to flow back to an entry point. Use arrow-heads on connectors where flow direction may not be obvious. There is only one flow chart per page A page should have a page number and a title A flow chart on one page should not break and jump to another page A flow chart should have no more than around 15 symbols not including START and STOP If you study the examples here you should see the rules being applied. Draw a flow chart and trace table for the following problem: Fred sells bunches of flowers at the local shopping centre. Flow charts and subprocesses There is one last topic to do while we are running hot on flow charts - dealing with subprocesses. Remember that when you studied pseudocode you learned about subprocesses and the benefits of using them. The subprocess is useful because: In flow charts subprocesses are also useful in dealing with the flow charting rule that a flow chart should have no more than 15 or so symbols on a page. Here is an example of the use of subprocesses in flow charts: This is the main page of the flow chart and it contains two subprocess symbols. Each symbol contains some legend which describes briefly what the subprocess does. Each symbol also contains a page reference which indicates where the subprocess flow chart is. Note that the flow chart has a title and a page number. The Add even number subprocess appears on its own page as indicated by the main flow chart on page 1. A subprocess flow chart can contain other subprocesses, there is no limit to how deeply these could be nested. Exercise 2 With your answer for Exercise 1 modify the flow chart so that it has a main flow chart and shows each of the following as subprocess flow charts: Using nested loops in flow charts The nested while loop is shown here. Each single step through the outer loop will lead to the complete iteration of the innner loop. Assume that the outre loop counts through 10 steps and the inner loop through steps. Nested loops will do a lot of work. The repeat loop shown here, like the while loop example, is much simplified. It does show two processes, sequence 1 and sequence 2, one process in the outer loop and one process in the innner loop. Like the while loop the nested repeat loop will see a great deal of work done. Using multiway selection in flow charts The flow chart form of multiway selection is shown here. You can see it how it shows quite clearly the notion of decisions nested within decisions. If decision 1 is true then sequence 1 is executed and the multiway selection is finished. If decision 1 is false then decision 2 is tested, if this is true then sequence 2 is done and the multiway selection is finished. If decision 2 is false, you get the picture. Exercise 3 Here is exercise 3 again from one of the pseudocode lessons. It has been only slightly modified: Assume you have the following data stored somewhere: Design a program using flow charts which: Exercise 4 Rewrite the nested loops and the multiway selection from above as pseudocode. There is a sample answer here but attempt the exercise for yourself before looking at the sample. Summary In this lesson you studied flow charting, which is the third of the program design techniques on our list, there is just one to go. You should have learned what program flow chart is what symbols and constructs are used in drawing flow charts what the guidelines are for drawing flow charts how to use flow charts in program design how to use subprocesses in flow charts how to use nested loops in flow charts how to use multiway selection in flow charts You should also have learned a little bit more about loops and decisions and gained some more practice at designing programs. You will probably agree that flow charts, although easy to read, are a fairly time-intensive way of program design. The next lesson introduces Nassi-Schneidermann diagrams, another graphical technique.

Chapter 6 : theinnatdunvilla.com | Trade Execution:

Directing. The MFA Directing program provides early-career professionals with the opportunity to cultivate their artistic identities and professional objectives while refining and enhancing their technical skills and range.

You have been asked to serve as a program chair for a dinner or master of ceremonies otherwise known as MC, or emcee for a more lavish event. It means you are known by the audience and respected by the people putting the event together. If you do it well, you are admired anew and you grow in stature within your company and with all those in attendance. Your First Responsibilityâ€"To Open the Event Your first responsibility is, of course, to open the event, to welcome everyone. Usually you will do this from a platform or a stage. How you do it creates the climate for the meeting. You either lift the audience and build anticipation, or you bore them and create apathy. As such, you are the catalyst. You carry the audience on your shoulders. At this point, they are a clean slate. You are the artist who determines what is painted there. Many years ago, there was a great speaker named Percy Whiting. He would always greet the audience by asking in a booming, microphone-aided voice, "Can you hear me in the back over there? A few brave members of the audience in that corner would shout back, "Yes, we can hear you! He became the focal point. All side conversations ceased. He achieved audience interaction. Members of the audience actually spoke out loud. The anticipation level started off on a high. That was what he wanted to accomplish. That was his purpose. Yet it all seemed so natural as far as the audience was concerned. It was fun, and it stirred everyone to attention. Identify Key People in the Group In the crowd, of course, will be significant people within your organization. They need to be recognized for any number of reasonsâ€"if nothing else, they have marquee value with the audience, and their noted attendance will lend prestige to the event. There are seven hundred people present. Once you have opened the session and welcomed those in attendance, you need to give ample recognition to the officers, the directors, and the people who were responsible for putting the event together. Do it individually for the key people. Decide with them beforehand if they will stand when their names are mentioned. Make sure you know how to pronounce their names. And it feels bad, too. Then say it back to them at least three times. Then write it phonetically in your notes. Then say it five times to yourself before your moment of truth. Provide the Common Bond Next, tell the audience "why we are all here. You need to find this thread, state it, and connect everyone. An Example of an Opening We are here tonight because the "Y" is, in some way, important to each of us. Certainly many of us use the Y regularly as an adult fitness facility. It comes from what it has done for kids. Probably 75 percent of you folks in this room can remember a time when you were a kid and the Y made a positive difference in your life. And though the Y has programs for every age group, kids are what we are all about. The Y has no equal for providing programs for the development of kids from toddlers through the teen years. Thank you for being here. Why It Works Now imagine yourself in the audience hearing what you just said. There had to be a beginning. The session had to be opened. The audience needed to be connected to one another and to the event. And you just did it. Everyone present is now "tuned in. Tell them what to expect. Include an indication of how long the program will be. Now your listeners are comfortable. They know the parameters. They will settle in.

Chapter 7 : code2flow - online interactive code to flowchart converter

Directing Change is an evaluated youth engagement program and offers training and technical assistance to help districts and schools meet the requirements of AB

What is C Programming Language? C is a general-purpose programming language used for wide range of applications from Operating systems like Windows and iOS to software that is used for creating 3D movies. C programming is highly efficient. Standard C programs are portable. The source code written in one system works in another operating system without any change. If you know C programming, you will not just understand how your program works, but will also be able to create a mental picture on how a computer works. More information on C Language. Assembly languages are low-level programming languages that are specific to a particular computer architecture. They are hard to write and understand. Johnson decided to rewrite the system in B language. A large part of Unix was then rewritten in C. By , C was powerful enough to be used in Unix Kernel. Dennis Ritchie and Stephen C. Johnson made further changes to the language for several years to make it portable in Unix Operating system. The first edition of the book provided programmers informal specification of the language. This version is commonly popular as C This is commonly known as C It will help you learn the language the way it was intended. Features of C Programming Language A procedural language. In procedural languages like C, a list of predefined instructions are carried out step by step. A typical C program may contain one or more procedures functions to perform a task. If you are new to programming, you might think this is the only way all programming languages work. However, there are other programming paradigms as well. One of the commonly used paradigms is Object-oriented programming OOP which allows developers to create objects to solve the given task. If you are interested, check out the differences between procedural and object oriented languages. C programs are fast. Newer languages like Python and Java offer more features garbage collection, dynamic typing than C programming. However, the performance lowers due to additional processing. C language trusts programmers and allows direct manipulation of the computer hardware. This is not possible in most high-level programming languages. Well-written standard C programs are portable, meaning, programs written in one system e. Windows 7 can be compiled in another system e. Mac OS without any change. You can store sections of C code in the form of libraries for future use. This concept is known as modularity. C itself can do very little on its own. The power of C language comes from its libraries. C comes with standard libraries to solve common problems. C is a statically typed language. This means that the type of a variable is checked during the compile time but not in the run-time. This helps in detection of errors during the software development cycle. Also, the statically typed languages are faster than dynamically typed language in general. Despite being old, C is used in variety of applications from system programming to photo editing softwares. Some of the applications where C programming is used are as follows: Personally speaking, I love C programming. It is a good language to start your programming journey if you are a newbie. Even if you are an experienced programmer, I recommend you to learn it at some point; it will certainly help. What will you gain if you learn C? Sure, your application works fine and all. You will understand how a computer works. If you know C, you will not only know how your program works but, you will be able to create a mental model on how a computer works including memory management and allocation. You will learn to appreciate the freedom that C provides unlike Python and Java. Understanding C allows you to write programs that you never thought were possible before or at the very least, you will have a broader understanding of computer architecture and programming as a whole. C is the lingua franca of programming. Almost all high-level programming languages like Java, Python, JavaScript etc. Opportunity to work on open source projects that impact millions of people. At first, you may overlook the fact that C is an important language. Then, where is C programming? Python is used for making wide range for applications. And, C is used for making Python. If you want to contribute to Python, you need to know C programming to work on Python interpreter that impacts millions of Python programmers. This is just one example. A large number of softwares that you use today is powered by C. You will write better programs. To be honest, this statement may not be true all the

time. However, knowing how computer works and manage memory gives you insight on how to write efficient code in other programming languages. You will find it much easier to learn other programming languages. Reasons not to learn C programming You can create awesome softwares without knowing C programming at all. Jeff Atwood, one of the creators of Stackoverflow. Also, if you are a newbie and want to start learning programming with an easier language C is not the easiest of language to learn , you can start with Python. Verdict on whether to learn C programming or not For newbie: For many, C programming is the best language to start learning programming. However, if you want to start with an easier language which is clean and easier to grasp, go for Python. You can learn it when you have free time and want to expand your programming skills. However, you should learn C eventually. Compile and run C programming on your OS There are numerous compilers and text editors you can use to run C programming. These compilers and text editors may differ from system to system. Run C program Online There are several sites that allows you to run C programming online. The one I prefer is ideone. To run C programming in Ideone. Click the download Xcode link. When download is completed, open Xcode and follow the wizard to install it. You might want to put the Xcode in Applications for future use. Provide the Product Name, for example: And, choose C under Language section. Choose the location where you want to save the project in your Mac. You can uncheck Create Git repository button and click create. Change the code as you wish. By default you will see the output at the bottom of your screen. Or, you can download text editor of your choice. Open the terminal and issue the following command. For Ubuntu and Debian distribution: To verify if gcc compiler is installed, issue the command. Open the text editor of your choice and save a file with. If you are a Linux wizard, feel free to use vim or emacs. Switch to the directory where the file is located. And, issue the following command. And, name-of-your-choice can be any name you prefer. In my case, I issued the following command.

Chapter 8 : Designing programs with flow charts

Say you write a program where the user inputs a number (corresponding to student grades, A(represented as 1)-D(4) and F(5)), stores it in a variable grade and the program responds by printing to the screen the associated letter grade. If you implemented this using If-Else, your code would look something like this.

Compact, highly specialized courses. Build strong professional connections in Boston and beyond through interaction with member companies of the BU Professional Theatre Initiative. A required professional development residency in the third year with a theatre company or artistic mentor of your choice. One or two students each academic year. After I submit my application, when can I expect to hear from BU? Calls are made to between five and ten finalists in mid-March. We invite finalists to spend the day with us in Boston in late March for further orientation, interviews, tours, discussion with current students, and the direction of a scene of your choice with our current BFA Acting students. Following this, we make our decisions in early April. Applicants not admitted to the program are usually notified in mid- to late-March. This supplemental training allows for the director to gain practical knowledge in the understanding of institutional tasks requisite for the artistic directorship of a non-profit or commercial theatre venture. Is it possible for a full-time MFA Directing student to hold down a job while in the program? The full-time curriculum in addition to assisting, directing, and homework make it impossible during the school year. Students are free to have jobs, do internships, engage in other PTI experiences, etc. Is it possible for an enrolled MFA Directing student to direct outside of the program? During the school year, we encourage you to direct within the program, to take advantage of our mentorship in residence. As stated above, summers and winter breaks provide time to work elsewhere. Students, in consultation with faculty, have successfully petitioned faculty to adjust the timing of their internship semester away to accommodate an unusual opportunity. How many plays does an MFA Directing student direct over his or her three years in the program? Students customarily direct six to seven productions in their 2. Who is in the casting pool for these directing projects? What sort of financial support is offered for admitted MFA Directing students? BU School of Theatre offers one or two fully funded positions per year. This funding includes tuition and provides an assistantship and a stipend. Typically, if students take out loans, it is to cover these expenses.

Chapter 9 : Controlling and managing a complex program flow in C# - Stack Overflow

Now it comes to flow,Flow is just a way or sequence of program execution. By default every statement of program is executed one by one in an order they appear in a program code. By default every statement of program is executed one by one in an order they appear in a program code.

This guide helps you how to program your own chat bot. Introduction Artificial Intelligence AI technology provides techniques for developing computer programs that carry out a variety of tasks, simulating the intelligent way of problem-solving by humans. The problems that humans solve in their day-to-day lives are of a wide variety and in different domains. Although the domains are different and so are the methods, AI technology provides a set of formalisms to represent the problems as well as techniques for solving them. What AI technology provides us is what is described in the above sentences. Based on this, it is very difficult to precisely define the term "artificial intelligence. These help people to know item prices and offers. You may find this kind of chatbot on websites that offer products and services. Help desk information desk chatbots: You may find these in large libraries, websites or programs. These are made for fun and chatting. In , Eliza, the first chatbot, was created by Joseph Weizenbaum. We are going to focus on the logics only, so any programmer can program the logics into any programming language. Building your chatbot Before building your chatbot, you have to understand that any chatbot consists of three main parts: This is where you are going to write what you want to say to your chatbot. This allows you to send your input to be analyzed before getting the output. This is where your chatbot is going to give its response The most important part is the sending button, as it contains all of the processes that analyze your input before copying the result to the output. We always hear these sentences when two people start talking. These sentences are usually used at the end of conversations. As you can see, there are countless possibilities for inputs that your chatbot may not understand. For this reason, we have to classify any dialogue to a number of subjects and expressions. We also need to create files for each subject and each expression containing all of the related words. Now your chatbot has the database with which to understand user inputs and give suitable outputs. So the chatbot should be sad or surprised, not angry. You must therefore build search engines to look for user inputs in different ways, to make sure that your chatbot will understand user inputs well and give suitable responses. Special and Matrix Search Engines The Special Engine compares between sentences stored in the database and user inputs, while the Matrix Engine compares between words stored in the database and user inputs. Each file has two types, Matrix Database and Special Database. Each type of database uses its engine. As you see in Figure 2, the Matrix Engine failed to give the correct answer because it was looking for words. You may think that the Matrix Engine is useless, but it is actually not. Figure 3 shows the importance of the Matrix Engine in understanding three different sentences that have the same meaning. The match is with only one record in the Matrix Database. That means that the Special and Matrix Engines complete each other. One last thing you should know about this engines is that the Special Engine is a part of belongs to the Matrix engine and so you should arrange the steps of searching as follows: If a result is found, then give the output. Else search using the Matrix Engine. Else search in the One Word File. If you follow these steps in searching, you will not face the problem of the Matrix Engine in Figure 2 or the problem of the Special Engine in Figure 3. One Word File is a database that contains only one word that may be found in user inputs. So, your chatbot may reply with something related to the user input, but with less accuracy. I will also examine how to make your chatbot give more than one answer for the same input. This will make your chatbot more real, human-like and more reasonable. Each file has two databases: Each database also contains two fields: See Figures 2 and 3. In Figure 4, there are two outputs for the same input. Also, one row can contain more than one request and respond value. This decreases the number of records, as it reduces the repeated related sentences in one row. How to make your chatbot respond by different ways To do this, you have to create a variable with an initial value equal one. Every time your chatbot gives a response, add 1 to the variable value. When the Request value matches with the user input, the output equals the sentence that has the number of the variable. If the variable is greater than the last sentence number, make this variable equal to 1 and let the output equal the 1st sentence.

Otherwise, add 1 to the variable value. Figure 5 shows how to merge related records into one record. This also leads to merging responses into one record, which makes your chatbot respond in different ways. Perhaps the user mistyped the input or perhaps you simply have poor AI databases. You need to create a database that your chatbot can use to generate sentences about misunderstandings. These sentences leave an impression on the user, as they make your chatbot appear to understand. Wait, I got a phone call. Oh, my keyboard hung again. Other engines Previous Events Engine When you ask anyone about something and then you ask them about it again, they are going to say, "I told you that â€¦etc. The Previous Events Engine function simulates the same thing with your chatbot. Figure 6 shows how the Previous Events Engine works. You may have noticed that there are two databases for this engine: You can also improve this engine by making your chatbot wait if the user is typing a message. Assume that two minutes is the defined period of time before this engine works. If the time is up, your chatbot sends a response from the Auto Talk Database. Where did you go? It should also recognise some verbs and come with their pronunciations in all tenses, such as the verbs of "to be," "to have" and "to do," as well as modal verbs. It then uses them in the response sentence. The user says, "You are suspicious. It also replaces their verbs like Am, Are, Was, Were, etc. You can also add a small part to the sentence like, "Why do you think that? It also makes your chatbot seem wiser. Say the user is talking about trouble. I will call this the Learn Engine. Examples of such AI operations include the ability to play chess while chatting, the ability to organize your schedule and the ability to control your PC. Please remember that this is a dangerous area. In the case of dangerous operations like deleting files, the chatbot must warn the user before performing them. So, we have to treat the operation sentences like ordinary sentences first. What we do when we make operations work depending on the Matrix Engine is to make the chatbot know the meaning of sentences and to choose the convenient answer to them. Rather, it contains some information about the operation that the chatbot should carry out. We do this a simple way by defining an ID number for every operation. There are two main parts of operations: Limited direct Operations and Extended Operations. The Limited Operations are the commands that chatbot carries out directly without caring about the next response of the user. The chatbot will open file straightaway. In this type of operation, the difficulty is found only in having the code of the desired operation in the language you program your chatbot in. The Extended Operations are the commands that chatbot carries out with concern about the next response of the user, which may specify more details about it and how it should be done. The difficulty in this kind of operation is not only in the code, but also in how to relate between the command sentence and the next sentences wherein the user will inform the chatbot of more required information regarding the running operation. So, we will use the Previous Events Engine, whose main task is relating between sentences. Figure 7 shows the copying of some files from a path E: After the chatbot receives the sentence containing the command to copy files, it will be analyzed by the Matrix Engine which recognizes the command. It will choose a suitable response and make the user determine the files and destination they should be copied to. The chatbot will begin to copy files to the destination where some files have the same name as the copying files. So, the chatbot will ask the user what to do in the message, "The paste destination already contains the file name of the file. Do you want to overwrite it? Yes, Yes to all, No, No to all. This allows the chatbot to relate between the question he asked and the user reply.