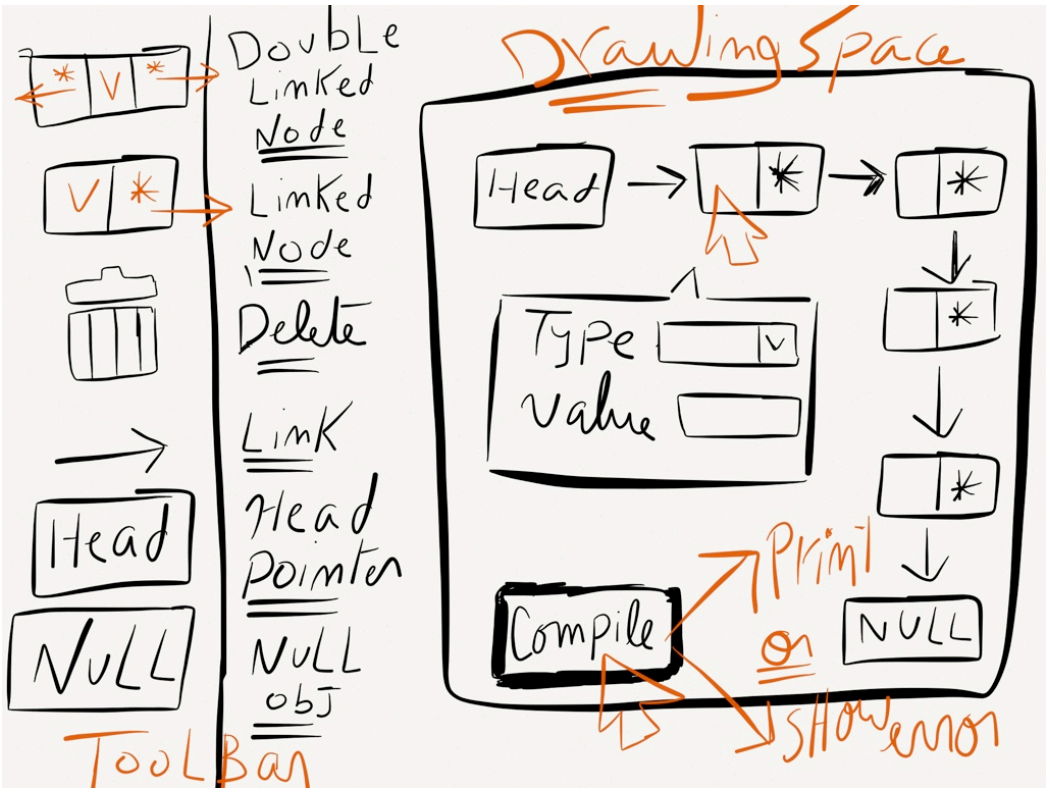
Ain Shams University
Faculty of Computer and Information Sciences
Data Structures Project

Title	**Windows Based - Linked List Builder** 
Description	Linked List Builder is a GUI (Graphical User Interface) based Application responsible for Building Linked Lists and Double Linked Lists as well. User must be able to Draw the Linked List (or Double Linked List), and then Click on the Compile Button which prints the Drawn Linked List in case of no error, otherwise show errors. User Interface must include: Tool Bar whose items are: • Double Linked Node Item: For Double Linked List Construction. User drags and drops it to build a Node. • Linked Node Item: For Linked List Construction. User drags and drops it to build a Node. • Delete Item: Allows user to Delete any drawn Object such as Head Pointer, Node, Next Pointer, … User will select Delete Item, select any drawn Object, and then a confirmation message will be displayed for deleting the selected drawn Object. • Pointer Item:

	Allows user to point Head to Nodes, or Nodes to each other. User will select Pointer Item, mouse down on Head or Node to start the link, mouse up on another Node to stop the link. • Head Item (as well as Tail Item): Head is placed on Drawing Space to be linked to the first Node. When placed, Head Item must be disabled (force user not to place more than one Head item). • NULL Item: If user wants to link a Node's Next pointer to NULL. Drawing Space: • User will select any Node on Drawing Space to edit node's Data Value and node's Data Type which means that Generic Template is a Must. Data Value field is a Text Box, Data Type field is a Combo Box (predefined types). • Compile button to print the Built Linked List in case of no error, otherwise print errors. • Drawing Space must be as flexible as possible, for example, when moving a Node, it's link must be stretched with it, and so on… • Validate everything, for example, user can't set Nodes with Different Data Types.
Group size	3-4.
Deliverables	2-3 Weeks.
Bonus extensions	Any non-trivial updates are accepted as Bonus. Any user experience enhancements are accepted as Bonus.
Mentor	T.A. Mourad Aly.
Notes	Windows Based Application tutorial is needed.