**CS 419 Compiler**

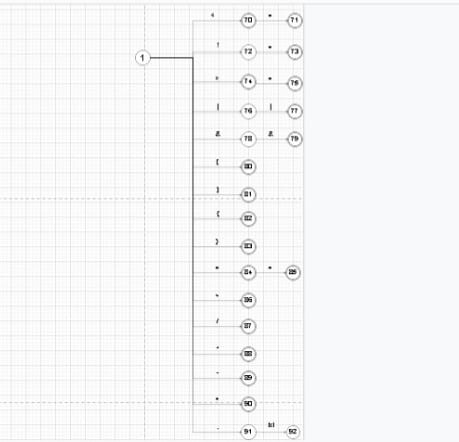
**Project Form**

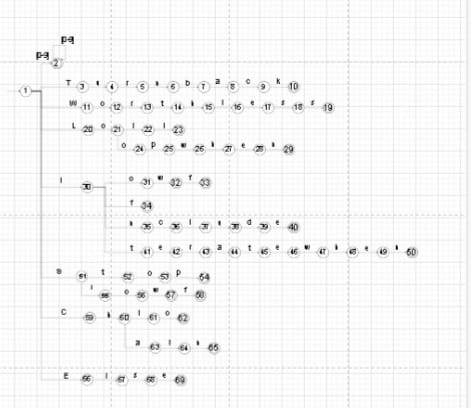
**Project Idea: Project #1**

**Team Members NO#: 7**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Name** | **Level& Department** | **Section(Day-from-to)** | **Role**  **(Lead/Member)** | **Grade** |
| **201900009** | **ابراهيم عبدالعزيز ابراهيم** | **Level3**  **,(علوم حاسب)** | **الأربعاء الساعه 10** | **Team leader** |  |
| **201900006** | **ابراهيم خالد ابراهيم عطيه** | **Level3**  **,(علوم حاسب)** | **الأربعاء الساعه 10** | **Member** |  |
| **201900123** | **اسامه على حمزه** | **Level3**  **,(علوم حاسب)** | **الأربعاء الساعه 10** | **Member** |  |
| **201900105** | **احمد منير محمد محمد** | **Level3**  **,(علوم حاسب)** | **الأربعاء الساعه 10** | **Member** |  |
| **201900161** | **آلاء عيد محمود** | **Level3**  **,(علوم حاسب)** | **الأربعاء الساعه 10** | **Member** |  |
| **201900370** | **شرين محمد رزق محمد** | **Level3**  **,(علوم حاسب)** | **الأربعاء الساعه 2** | **Member** |  |
| **201900395** | **عاصم عماد عبد اللطيف احمد** | **Level3**  **,(علوم حاسب)** | **الخميس الساعه 8** | **Member** |  |

**Regular Expression, Finite automata and Conversion from RegX to NFA, NFA to DFA**





**The others:**

**viewer.diagrams.net/?tags=%7B%7D&highlight=0000ff&edit=\_blank&layers=1&nav=1&title=Compilers%20DFA%20keywords.drawio#R<mxfile><diagram%20id%3D"QCs6ljQVlw311axWU4hv"%20name%3D"Assignment%20Operator">1VZNc9owEP01PpIxMsZw5KvNIe1khkOHo4IXW62wHFnmI7%2B%2BK0vG2AIm6ZBpe8Hyk3Yl7XtvsRfMtoevkubpNxED94gfH7xg7hFC%2BoGPD40cDTIOiQESyWID9Rtgyd7AgjYuKVkMRWuhEoIrlrfBtcgyWKsWRqUU%2B%2FayjeDtXXOagAMs15S76A8Wq9Sgo9Bv8EdgSVrv3PftzJbWiy1QpDQW%2BzMoWHjBTAqhzGh7mAHXxavrYuK%2BXJk9HUxCpt4TMF2NX1ckiNh3iILe0%2FMqfnzrWTIKdawvDDHe374KqVKRiIzyRYNOpSizGHRWH9%2BaNU9C5Aj2EfwJSh0tmbRUAqFUbbmdNXvqja5exUKFKOUabpy%2FfyokKhDEFpQ8YpwEThXbtfNTK4XktO4U%2BiwY7kx8K9tgYDmzoiUjv51CUZmAslFNzXFwdowGqpj4ACv2wDvKS3sFjww5lmaat8gavpZaPVPOMuilVoYTXNJ%2FCPG3KjVKPlO9ouJCT5EwPzSROEr0c1JvgOfNa9DVBufoO62BfcoULHNakbNH67cZpkVuzLhhB60Um2oHUsHhNukumXVA1CGlJml%2F5ksLpWeW7HJ3Tn%2BLuI%2ByNHRYulUxtH%2BuwViULxwWf1xJTad1FgnvU1lH7n%2B7stG%2F3JXu3m2GYbv60fghbOcwbdBpN04mxyJuqk%2FuXKOrnUvr9mLz6vanwaX%2BZCLqDmVyXWlS6APV8RBnSYbjNRIJEgHtFob%2F8RM7sWVxbEQEeBD6UqXSMsp1narKhVMvnOtcqBtz2Cp1oaT4BTPBBeadZyLTWTaM8y505lpyH9eSqKObQei4Nrjg2uCzXDt2uF%2Bi2tT%2FR9DgPgSNul3V5Se6Dz%2F42nxHGis3X%2BPB4jc%3D<%2Fdiagram><diagram%20id%3D"xNZU\_RkGUwruamx3BKzZ"%20name%3D"Access%20Operator">3VjLdpswEP0als7BYBln6VebRdvTU58%2BslRABrUCESFs3K%2FvCAnzstOkJXHaTZCuNCNp7tyRHMtdxsVbgdPoPQ8Isxw7KCx3ZTnO2HZn8FHIQSPIG2sgFDQwk2pgQ3%2BSytKgOQ1I1pooOWeSpm3Q50lCfNnCsBB835625ay9aopD0gM2PmZ99CsNZKTRGbJr%2FIbQMKpWHttmJMbVZANkEQ74vgG5a8tdCs6lbsXFkjAVvCou2u7NmdHjxgRJ5GMMZvh%2BO8v8T8QvPnxO97l380WOjJdMHqoDkwDOb7pcyIiHPMFsXaMLwfMkIMqrDb16zjvOUwDHAH4nUh4MmTiXHKBIxsyM6jXVQmePUu2L58InD%2BzfOQYSMpDwmEhxADtBGJZ01%2FaPTSqEx3lH04%2BcwsqObdLWnRjOTNI6M7vtQmIREmms6phDo7GNGiqZeAIrjl5th1lujmA5UwahWaQtsqb3ucqeBaMJGUUmDecwZXyF4G8Zakj5RI6ykgs15KC0qC2hFarvvFoA9ptWYD83GAPdqRzYR1SSTYpLcvYg%2FTbDOEu1GLe0UJliXO2IkKR4mPQ%2BmZWB1yGlImnf0KWBooYku9w16W8R91SW3B5LywciBvJPFRjw%2FI6R9R9HUtFplOWgYSKLuul%2B6chOXnNVGrzaTFE7%2Bt71FWr70GWwV256nnoS6bt65sqFzlYulbcni1e3Pk1P1adRoz5pT2dKFKhAdhTEaJhA2wcaiQBAaYXCDT83AzENAp1CBLaB70pXKolSFaUybmhhoZXyBVmjt1q6zqTgP8iSMw5%2BVwlPlJctZawLNTTrDKPZo%2FiOmkU9zTonNOs%2Bl2anPeY3kGvy3yNoMgxBj%2BDHe0l%2BZpeoqaSg8lujfatcXSHTWxXGc9k5mM5pLgZ5LXrPUr%2BRe9nXovfir8XF638tupPOrXrpN83139%2BMJ7mAL45VQKve%2F3FNDlSFJ%2Bj3ZdgdpgxDt%2F4xr7Vd%2F0vEXf8C<%2Fdiagram><diagram%20id%3D"CB\_cIHO1itPAxqHpADm8"%20name%3D"Quotation%20Mark">3VhNc5swFPw1HJ3BgIxzjD%2BSdKadpuPOpD0qRgElMiKysHF%2FfZ%2BQMAjstGlJnPZiSyvpSbzdt8h2%2FOmquBI4Sz7xiDDHc6PC8WeO5w1dfwxfCtlpBIVDDcSCRmZSDSzoD1KtNGhOI7K2JkrOmaSZDS55mpKltDAsBN%2Fa0%2B45s3fNcEw6wGKJWRe9pZFMNDpGbo1fExon1c5D14yscDXZAOsER3zbgPy5408F51K3VsWUMJW8Ki963eWR0f3BBEnl7ywIP3yZfQ4ub6Or%2BOb6MXz6%2BkCGAxNlLXfVA5MInt90uZAJj3mK2bxGJ4LnaURUVBd69ZyPnGcADgF8IFLuDJk4lxygRK6YGdV7qo2OPkp1Lp6LJXnm%2FN4%2BkaBAwldEih2sE4RhSTd2fGykEO%2Fn7ZfecAo7e66RrR8YzoxovbFrh5BYxESaVXXOodE4Rg2VTLyAFU%2FvtsEsN4%2FgeCMGqZlkFlmjp1ypZ8JoSgaJkeEFTBmeIfgsUw2ST%2BVgXXKhhjyUFfVKaMXq%2B6LaAM6bVWBXG4xB3SkNbBMqySLDJTlbKH2bYbzOdDHe00IpxYTaECFJ8TzpXTKrBWGLlIqkbaMuDZQ0SrLNXZN%2Bi7iXsuR3WJo%2BkzEo%2F0yBEc%2FvGJn%2FcSYVnaayPNRPZlFb7qfObPCeXal3txkhO%2Fvh%2BRmyY2gb7NhNJ1KnRLqhXtm50FHnUro9aF5tfxod8icLqYxKhzziVVAOslVKjMYptJfAJxEAqKKh8Kq%2FMAMrGkVaSwTOg%2B%2FKUEpNmUpXmUA0cdBMxQL56DOXoddS8Ecy5YxD3FnKUxXlnjLWhhrF6%2FVTvF7Ykk%2BAOsXrHyhe%2F7WKd9SRwAJEJ%2F89goJ%2BCBq3zbXLT%2FiW%2FISnMFdSUPmt0f6uQp0h05sVJnLZ2ZnOYS56uTaOX8XIkX%2Faa%2BP4za%2BNk%2Fd%2FbfSDtj%2Be%2BHJz%2FvevyINc%2FIevyJ4cOEC%2FfkV6%2FVgwdOtf9Lqu6%2F9F%2FPlP<%2Fdiagram><diagram%20id%3D"AFeMk3rtE40mmlH2kEBV"%20name%3D"Constant">1VjbctowEP0aHvHoYkn2YyDpZabttE1n2reOghXsVliuEQH69V1hGSMbmKQl05YX7CPtarVnz0owotPF5mUtq%2FytyZQeEZRtRvR6RAhGNIEvh2wbhAncAPO6yPykDrgtfqrW0qOrIlPLYKI1RtuiCsGZKUs1swEm69qsw2n3RoerVnKuBsDtTOoh%2BrnIbN6gCUMd%2FkoV87xdGSM%2FspDtZA8sc5mZ9QFEb0Z0Whtjm6fFZqq0S16bl8buxYnRfWC1Ku1jDL4%2BZObjJ%2F1h%2FGFVv%2F5CP%2Bbbxbux97K023bDKoP9%2B1dT29zMTSn1TYdOarMqM%2BW8Injr5rwxpgIQA%2FhNWbv1ZMqVNQDldqH9aLOmW%2BjkVtq4zKqeqTPxk30ioQKVWShbb8GuVlra4iH0L30pzPfz9qbvTQErE%2BTLliasMfFFS2IUurCynivrrbqcw8NBGB20Y%2BIJrJBmtQepV34LI8I1pGZSBWTxHytXPRNdlGqc%2BzK8gik4gg2gXaqh5Es7Xu64cEOEVZvOEp7m7vuqXQDirVpwWBtag%2B5cDazzwqrbSu7IWYP0Q4blsmrEeF9sXKV4Vw%2BqtmpznvQhmd6A4B4prdLWB7r0UH4gyQSdpj8g7qks0QFL5zIG8q8cmJnVnVY3v51JR6dXFmGXyeyg3P92ZuN%2FuStdvNvg9qxr00%2FTiIVOmj446DcDVwONDF09c%2BtiJ1uXK9yj3avfoPixBjViEzROR%2Bz6oFE1Hk%2F0KpCD7UlJF%2FMSnmfAp6oBcKIp4Ki%2F8gOLIsuaWlIQjrzbuXLVVLls7fLHJi4E8AXl04S8c720tfmupkYb8HtdmtJ5uS%2B07kMH4iUXEi%2FqVQ9iA%2FGKI%2BKlzyVePqiAW6g5%2B%2F8RFF%2BGIEz63fUvE4TxEY32%2B22ZXbnbs2NDy%2BWymIVUNflsb8Q75Luys9zzsb%2Froj9qrG2Ji4jGJCYiFjyNGQrzOY4JihhPeIIxSQXDySC9HEXuUBOY4pQJlFA2TLef0334U%2Fs4BBhRHnKdoKh3Hjy2lccxjgTHGPMYvKBEhI5FGqVpQklCRQrn9%2BOaPFAqtwfTvGxO7wjFkRCcpBzFnCCRBjFQgiOeMoqTRCASJ%2Fj8fuggO5S02TlpxGPYJqdcUM6E6CXhbADw0Gz3oscbPnI1706m%2F63D8QsdQWmoSEqH98djHa7%2Fq%2BoRHQ5eu1%2FMDand%2Fw705hc%3D<%2Fdiagram><diagram%20id%3D"oirRQgKJSJRk2z8MqvRv"%20name%3D"Braces">7VpJc9owFP41HJOxLW8cw5K002aalkPT3hwssFphubII0F9fCcl4kSEk4GCazGQG61l6lvUteiJ0QH%2B2vKFBEt2SEOKOZYTLDhh0LMvkf%2FxDRFYy4nqWDEwpClWnPDBCf6EKGio6RyFMSx0ZIZihpBwckziGY1aKBZSSRbnbhODyU5NgCrXAaBxgPfodhSySUd8x8vgHiKZR9mTTUHdmQdZZBdIoCMmiEALDDuhTQpi8mi37EIvFy9ZFjrvecnczMQpjts%2BA9Ofs%2BuZTuEq%2Fffn6MQX4tjvAFypLylbZC8OQv79qEsoiMiVxgId5tEfJPA6hyGrwVt7nMyEJD5o8%2BAsytlJgBnNGeChiM6zu8gnT1b0av278EI1L4PtZYLAs3h6siq07SNEMMkhVUL6CmPfWlclek8zpGO5YDsVNFtApZDv6%2BRv8OPEh4bOhKz6OQhww9FieR6AYON302wy9I4jP0DKUWgBw5BClFZBxKUsh56VG5VDzi8I08tCaAM8hg3ESNiwRuy9cSy44qpUTQTQyHkxIzFRCy22AAseH1jNK0G787QlorygNVoVuieiQ7niOZdRS6HrP%2Ftm8cmbJGRyVZ0pljwGeq%2FXsWC7mOPWSEvvcP3Nhjj2MYngRKZe94l1MTg9LSt8QVLhI11wQtywnWeYj%2BdVUfJrZA%2Fh8kyyokx1jvq0IUi8ixOAoCdZMWfCdrUzZIE3kXjNBS0F9leoRUgaXuxmoMysb4JbFb7kKmUVh21GhqLDj%2BBUiFblYMojnogQ0lOwdK8Z3t0QEQzJ%2FwHD44pUsKts5zsp6FY6b3olXtmYdm7fZfS3y6NbnVhym2710yjmkJ2vep2XSJKKnaniHdDVNjPgTmYYnJyurEB2jacyvx3y1ReXSE5RGvM68UjdmKAwl0pC7WfCwTiWwVpbP8zq9jjMQuTi40vHWqVNGyW%2FYJ5iIiigmscgyQRhXQwVp2UeSVtWzHE1ZXo2yQFPKMr33CkYWp3sUsaZ9oN4Pgsp%2F9SLAaX8RALqV8g2ceKsynXMR1LZDpfPEkbJBIZrZFxZPKhGcUonZNF9RitYZSNFvWdVo6semmt3uHAvy07uc%2B%2B5yL3c5sKfLndbk9ONs0yYH2m9yjts2k%2FPflfhyJdr71huHfsl5GMb2q0vRPQMpem3bFLs6TJ6%2BaK3%2FqsM9Dj7ArFilreNj1eBjN4VP9rAaGYnXr1VSVSx%2BnVg6Vr8gF5lri2LeCvh2t23g15zZvMGbxcf12oaPflgTy3Z2%2BPhHMk9Q2dz8U%2BOz%2FTiwr3kC6383zyOB75htA7%2BmAHXOzzyB1Yx5NogPb%2BY%2FeJL%2FlMt%2FNgaG%2FwA%3D<%2Fdiagram><diagram%20id%3D"GDWJS54ki9CfYkwT9SCf"%20name%3D"relop">7Vtdc9o4FP0tfeAxHSwh2zyGjzSdbmfayXaaPmqxYntXWF4hAvTXr4Sl%2BEOOwxKMIeQJ61q6lu85R7pXQA%2BO5%2BtPHKfRVxYQ2gP9YN2Dkx4AACFXfijLJrM4zgBklpDHgbblhrv4N9HGvrYu44AsSh0FY1TEadk4Y0lCZqJkw5yzVbnbA6Plp6Y4JJbhboapbf0ZByLKrD7q5%2FZbEoeRebLT13fm2HTWhkWEA7YqmOC0B8ecMZFdzddjQlX0TFyycTfP3H2aGCeJ2GXALfkymgdu%2BPnPL%2BLRm36%2FCn7%2FuNJeFmJjXpgE8v11k3ERsZAlmE5z64izZRIQ5bUvW3mfPxhLpdGRxr%2BJEBsNJl4KJk2RmFN9V06Yb%2B71%2BG3jl2p8hL5vDJN18fZkU2x9IzyeE0G4NmavoOb9bGTMa7Iln5GGcEDNMMxDIhr6%2BU%2F4SeYTJmfDN3IcJxSL%2BLE8D6wZGD71exr6jcVyhqCv5QIHKBuixQIMl4yLbF56VA71Ned4U%2BiWqg6LhudAUPucmx37w2Fz%2F4GhfH1%2FeZHN2LQKMcxNW%2Fb%2BDyaDTpi8jsV94TrjMdKtnMSqYTj8wBKhHQK3QQ3oBS0cmvYHp3OVBo7TFp3Lz3mZzvXzapWeZsM4K35K3Z8hz1xwmjxzwTF41s2Ofok887zT5JmZV6s805nSI6ZLHc8ecKnEaZSW2Of%2Bu1QJ7ojGCbmKdKZ8Lbs4kh4g28f6igpXiy0X1C2A0nU%2BUl6F6vPaPEDONzVGm%2ByUytJAkXoVxYLcpXjLlJUsT8qUxYs0qxce4rWivnb1SLgg62YG2swyA7xyAue4GplVoXTQpqhQNfgVIhW5WIBxj9Wgi8VgVyEfXKBeZV8fDj%2Biso9s5bAUanmygLRdPSP2Q%2BnLtfR1J58oLDwlWUWF2DQOE3k9k9FWNdJIUTqWFe21vjGPgyBDmkjN4b%2B2rhTWemGSftGohybKlwQ30%2BXW9UJw9g8ZM8pU7ZWwRHl5iCmtmgop7uAw0vKrykKWsrwaZcG2lOWd4TZ7KuWG39utynbaWSZQZZ1AO9Ylh5K2f%2FStc3L6W6d1ZoA63jrBOR4obBPp9hX%2BonLRoB3lDvc7UbAd9V9w9EyicKglwHGsNWDaoMdFhFNlDNhS7tbTvXVa3AvQYXTrOiem24x6pdCO30Zova4jezY5z74rYItHEgjtunS6r1w6X4cxOnpycnN%2ByQnyu5aiXR5%2BehuLXPehtdPzz28jtB7sOLTmNOx9A9knpW7nO%2BdqJmwdarecCbvAktvtecrN%2Bnqgc7nZZ%2FRN%2B%2BpJh7Z8%2Btd1JuzaNYZMXPBchYbWpi%2BnfkxbWK1ehRR0y0gNbKRgDVKD1pCqyWc1XpcID4InBo%2Bdx14yPFX1wJot5Lj4eO%2F4NMgHgq7xsYuVDxeLDnQrpWRNmgCOis7wXT1F9VR%2B3lqHz1HVY55fl8bVn0JdClTVjcjreqHz7C9MLlpK1Z98tYePbOb%2FUciq%2FvyvHnD6Hw%3D%3D<%2Fdiagram><diagram%20id%3D"vBQHwblCXhtjucBLi1\_b"%20name%3D"Include">7Vpdb9owFP01PHaK7XzAY0tZN6mVJvHQxykjJnFn4syYr%2F362cRJSEw6KkIwUl8gubavHZ97cg%2FXDNB4sX3iYZa8sAjTAXSi7QA9DiAEAXLkl7LscsvIg7kh5iTSnSrDlPzF2qjHxSsS4WWto2CMCpLVjTOWpngmaraQc7apd5szWp81C2NsGKazkJrWVxKJJLcOPaeyf8MkToqZgaNbFmHRWRuWSRixzYEJTQZozBkT%2BdViO8ZUbV6xL%2Fm4ry2t5cI4TsUpA9KXtxc6%2BfmagKc5fB6tCR%2FHd9rLUuyKB8aRfH59y7hIWMzSkE4q6wNnqzTCyqsj76o%2Bz4xl0gik8Q0LsdNghivBpCkRC6pb8znVRK2PUqyLrfgMv7N%2BWG6kjEDMFljwnRzHMQ0FWdf9hzoU4rJfOfQHI3Jm6OiwRa7GTActHDp1FyLkMRZ6VLXn8uJgGZVpj8QHUNEUWYd0pR9hAH0qt%2BYhq4Hl%2F1mp6HmgJMV3iQ7De9kFfPHk536rZcin4m65x0I1QS%2FbViPlVay%2BnWICud6sMJqxQanknYqBTUIEnmbhHpyNpH4d4XCZ5WSck62KFO1qjbnA2%2FdBN8Es3yUNUAqQNge81KbkgJJN7A7hrwH3UZSQzdzpnBO%2BV9%2F9YPTFq%2FvIyWqQwvBkAGm6ujC%2F3FZ%2BKbIcpViTRf4xFn0%2FYFHuqYVIkgWiwRhK4lRezySMmEuD4gqReeheNyxIFOUhhOUywl97VyqIMrVL%2B33zHgbeo%2FIloyZf6t71UnD2G48ZZdLvY8pS5WVOKG2a5Ip13Kko6IKzJflKznoGZ%2BERzqJLcdYzkJ%2FKWBO3B5DbDUAn4BP0iY%2Ffe%2BYD9mc%2B5DbevdfOfIHNme8E1Ti8SIYMnOuqxmHv3IH2c8dDlqnGkc3c6ZwTLuxMNhpI9i4bi5pE57px9qkb66z1UTPjmboE9alLADCgT28PnY5Eo%2Bv%2FXzX2i07%2FBRNkf%2BoLHMtkI7C6YnKCbgTuRZIkcJqE6lk5gvaCyKX449rPn%2BHIMukIPJv50%2F3vqWFn2tGAsn%2Ft2F7ZOE87rj61Y522o5Ft2jEwoKe3h05XBcfmD8JrV4RB%2F2UTz%2F7cJyWJbeLR6sLJKUfVzvEdP1c8uvC64hG2V0UuRSD%2FBggEPcvUYxmoVhKoe16A5qnJGSfWBpi960fYXuI4Tz%2FiT%2F3YYC7yLBOQEBnYR7cHT0cCEoATzqz7haf%2F6klwAwnQOPq5XAKUt9X%2FKPM3bvVvVDT5Bw%3D%3D<%2Fdiagram><%2Fmxfile>**

**The All DFA:**

**https://drive.google.com/file/d/1ZozTsDkGX\_z8bjaRoRryt-ZVezo\_gZgD/view?usp=sharing**

**Parse tree and Abstract syntax tree**

[**https://drive.google.com/file/d/1L\_19cscuI1\_bQjWF8MOG4klo9PzZZarD/view?usp=sharing**](https://drive.google.com/file/d/1L_19cscuI1_bQjWF8MOG4klo9PzZZarD/view?usp=sharing)