**Suppose this is the O() of defined functions and all legths assumed to be n**

**1-append() = 1**

**2-range() = 1**

**3-len() = n**

**4-split() = n-1**

**5-zip() = n**

**6-set() = 1**

**7-min() = n**

**8-remove() = n**

**BEST CASE**

This table is created in this order.

|  |  |  |
| --- | --- | --- |
| Line | Cost of line | Times |

|  |  |  |
| --- | --- | --- |
| 33 | c1 | 1 |
| 34 | c2 | 1 |
| 35 | c3 | 1 |
| 36 | c4 | 1 |
| 37 | c5 | 1 |
| 38 | c6 | 1 |
| 39 | c7 | 1 |
| 40 | c8 | 1 |
| 41 | c9 | 1 |
| 42 | c10 | 1 |
| 43 | c11 | 1 |
| 44 | c12 | 1 |
| 45 | c13 | 1 |
| 46 | c14 | n |
| 47 | c15 | n |
| 48 | c16 | n |
| 49 | c17 | 1 |
| 50 | c18 | n+1 |
| 51 | c19 | n(n-1) |
| 52 | c20 | n\*n |
| 53 | c21 | n\*n |
| 54 | c22 | n\*n |
| 55 | c23 | n |
| 56 | c24 | n |
| 57 | c25 | 1 |
| 15 | c26 | 1 |
| 16 | c27 | n |
| 17 | c28 | 1 |
| 18 | c29 | 1 |
| 19 | c30 | 1 |
| 20 | c31 | n+1 |
| 21 | c32 | n |
| 22 | c33 | n |
| 23 | c34 | n\*n |
| 24 | c35 | n |
| 25 | c36 | 1 |
| 1 | c37 | 1 |
| 2 | c38 | n |
| 3 | c39 | 1 |
| 4 | c40 | 1 |
| 5 | c41 | n |
| 6 | c42 | 1 |
| 7 | c43 | 1 |
| 26 | c44 | n |
| 27 | c45 | n |
| 28 | c46 | n |
| 29 | c47 | 1 |
| 30 | c48 | 1 |
| 31 | c49 | 1 |
| 58 | c50 | 1 |
| 59 | c51 | 1 |
| 60 | c52 | 1 |
| 61 | c53 | 1 |
| 69 | c54 | 1 |
| 70 | c55 | 1 |
| 71 | c56 | 1 |
|  |  |  |

T(n) = c1+c2+c3+c4+c5+c6+c7+c8+c9+c10+c11+c12+c13+c14n+c15n+c16n+c17+c18n+c18+c19n^2-c19n+c20n^2+c21n^2+c22n^2+c23n+c24n+c25+c26+c27n+c28+c29+c30+c31n+c31+c32n+c33n+c34n^2+c35n+c36+c37+c38n+c39+c40+c41n+c42+c43+c44n+c45n+c46n+c47+c48+c49+c50+c51+c52+c53+c54+c55+c56

T(n)= n^2(c19+c20+c21+c22+c34) + n(c14+c15+c16+c18-c19+c23+c24+c27+c31+c32+c33+c35+c38+c41+c44+c45+c46) + c1+c2+c3+c4+c5+c6+c7+c8+c9+c10+c11+c12+c13+c17+c18+c25+c26+c28+c29+c30+c31+c36+c37+c39+c40+c42+c43+c47+c48+c49+c50+c51+c52+c53+c54+c55+c56

T(n)= An^2 + B\*n + C 🡪 θ (n^2)

**WORST CASE**

This table is created in this order.

|  |  |  |
| --- | --- | --- |
| Line | Cost of line | Times |

|  |  |  |
| --- | --- | --- |
| 33 | c1 | 1 |
| 34 | c2 | 1 |
| 35 | c3 | 1 |
| 36 | c4 | 1 |
| 37 | c5 | 1 |
| 38 | c6 | 1 |
| 39 | c7 | 1 |
| 40 | c8 | 1 |
| 41 | c9 | 1 |
| 42 | c10 | 1 |
| 43 | c11 | 1 |
| 44 | c12 | 1 |
| 45 | c13 | 1 |
| 46 | c14 | n |
| 47 | c15 | n |
| 48 | c16 | n |
| 49 | c17 | 1 |
| 50 | c18 | n+1 |
| 51 | c19 | n(n-1) |
| 52 | c20 | n\*n |
| 53 | c21 | n\*n |
| 54 | c22 | n\*n |
| 55 | c23 | n |
| 56 | c24 | n |
| 57 | c25 | 1 |
| 15 | c26 | 1 |
| 16 | c27 | n |
| 17 | c28 | 1 |
| 18 | c29 | 1 |
| 19 | c30 | 1 |
| 20 | c31 | n+1 |
| 21 | c32 | n |
| 22 | c33 | n |
| 23 | c34 | n\*n |
| 24 | c35 | n |
| 25 | c36 | n |
| 1 | c37 | 1 |
| 2 | c38 | n |
| 3 | c39 | 1 |
| 4 | c40 | 1 |
| 5 | c41 | n |
| 6 | c42 | n |
| 7 | c43 | 1 |
| 8 | c44 | n-1 |
| 9 | c45 | (n-1)\*n |
| 10 | c46 | (n-1)\*n |
| 11 | c47 | n-1 |
| 12 | c48 | n-1 |
| 13 | c49 | n |
| 26 | c50 | n |
| 27 | c51 | n |
| 28 | c52 | n\*n |
| 29 | c53 | n\*n |
| 30 | c54 | n |
| 31 | c55 | 1 |
| 58 | c56 | n |
| 59 | c57 | 1 |
| 60 | c58 | 1 |
| 61 | c59 | 1 |
| 62 | c60 | n+1 |
| 63 | c61 | n |
| 64 | c62 | 1 |
| 65 | c63 | 1 |
| 66 | c64 | n-2 |
| 67 | c65 | n-2 |
| 68 | c66 | 1 |

**T(n)=** c1+c2+c3+c4+c5+c6+c7+c8+c9+c10+c11+c12+c13+c14n+c15n+c16n+c17+c18n+c18+ c19n^2-c19n+c20n^2+c21n^2+c22n^2+ c23n+c24n+c25+c26+c27n+ c28+c29+c30+c31n+c31+c32n+c33n+c34n^2+ c35n+c36n+c37+c38n+c39+c40+c41n+c42n+c43+c44n-c44+c45n^2-c45n+c46n^2-c46n+c47n-c47+c48n-c48+c49n+c50n+c51n+c52n^2+c53n^2+c54n+c55+c56n+c57+c58+c59+c60n+c60+c61n+c62+c63+c64n-2c64+c65n-2c65+c66

T(n) = n^2(c19+c20+c21+c22+c34+c45+c46+c52+c53) + n(c14+c15+c16+c17+c18-c19+c23+c24+c27+c31+c32+c33+c35+c36+c38+c41+c42+c44-c45+c46+c47+c48+c49+c50+c51+c54+c56+c60+c61+c64+c65) +c1+c2+c3+c4+c5+c6+c7+c8+c9+c10+c11+c12+c13+c17+c18+c25+c26+c28+c29+c30+c31+c37+c39+c40+c43-c44-c47-c48+c55+c57+c58+c59+c60+c62+c63-2c64-2c65+c66

T(n)= T(n)= An^2 + B\*n + C 🡪 θ (n^2)