Eman Farrukh 21i-1726 BSCS-E

day / date:

DATA STRUCTURES

ASSIGNMENT #3

Question no. 1

Part a: 1. (A*(B/C-D)^E)+(E/F/(G+H))

RPN ⇒ (A*(BC/-D)^E)+(E/F/(GH+))

(A*(BC/D-)^E)+(EF//(GH+))

(A*(BC/D-E^)+(EF/GH+/)

(ABC/D-E^*)+(EF/GH+/)

ABC/D-E^*EF/GH+/+

PN⇒ (A*(/BC-D)^E)+(E/F/(+GH))

(A*(-/BCD)^E)+(/EF/+GH)

(A*(^-/BCDE))+(//EF+GH)

((*A^-/BCDE)+(//EF+GH))

+*A^-/BCDE+//EF+GH

Part b: 2. A+B$(((C+D%E)*F)/G)

RPN ⇒ A+B$(((C+~~+D+~~DE%)*F)/G)

A+B$(((CDE%+)*F)/G)

A+B$((($CDE%+F*)/G)

A+B$(CDE%+F*G/)

AB$CDE%+F*G/

PN ⇒ A+B$(((C+%DE)*F)/G)

A+B$(((+C%DE)*F)/G)

A+B$((/*+C%DFF)/G)

A+B$(/*+C%DFFG)

+AB$(/*+C%DFFG)

$+AB/*+C%DFFG

day / date:

Part b: 1) ABCD%E+F*G/*+

AB(C%D)E+F*G/*+

AB(C%D+E)F*G/*+

AB((C%D+E)*F)G/*+

AB(((C%D+E)*F)/G)*+

(A*B)(((C%D+E)*F)/G)+

(A*B)+(((C%D+E)*F)/G)

Part b: 2) +A+*BC/^DE*FG

GF*ED^/CB*+A+

(G*F)ED^/CB*+A+

(G*F)(E^D)/(C*B)+A+

((G*F)/(E^D))((C*B)+A)+

((G*F)/(E^D))+((C*B)+A)

(A+(B*C))+((D^E)/(F*G))

Part c: A+B*C^D^E%F*G

Symbol	Output String	op stack	Statement
A	A		append
+	A	+	push
B	AB	+	append
*	AB	+*	push
C	ABC	+*	append
^	ABC	+*^	push
D	ABCD	+*^	append
^	ABCD	+*^^	push
E	ABCDE	+*^^	append
%	ABCDE	+*^^%	push
F	ABCDEF	+*^^%	append
*	ABCDEF	+*^^%*	push
G	ABCDEFG	+*^^%*	pop

∴ ABC^D^E%FG*+

On line 4, the if-statement causes changes.

day / date:

Part d: A + B * C ^ (((D ^ E) % F) * G)

Symbol	Output String	op stack	Statement
A	A		append
+	A	+	push
B	AB+	+	append & pop
*	~~AB+~~ ~~+~~ AB+	*	push
C	AB+C	*	append & pop
^	AB+C*	^	push
(	AB+C*	^(	push
(	AB+C*	^((	push
(	AB+C*	^(((	push
D	AB+C*D	^(((	append
^	AB+C*D	^(((^	push
E	AB+C*DE	^(((^	append
)	AB+C*DE^	^((	pop
%	AB+C*DE^	^((%	push
F	AB+C*DE^F	^((%	append
)	AB+C*DE^F%	^(	pop
*	AB+C*DE^F%	^(*	push
G	AB+C*DE^F%G	^(*	append
)	AB+C*DE^F%G*	^	pop
	AB+C*DE^F%G*^		append

∴ AB+C*DE^F%G*^

On line 4, the if-statement causes changes.