HOMEWORK -4 GAURAV SHARMA 67XS230001 Xt = BX+++(1-B) Xt Q1 21 B=0 Hen!-At = (1-0) xt = Xt xi = xt = xt = xt Therefore Therefore xx= t+ for all t when \$320 2: X7 = (1-B) E BKi Xt = Fr ( + B) Si B Xi IX 3 1 - Pt mil 1-Bt B=1 who we were to Thous

House Must -10085 lim X+ = 1 & Xi GRURAY SHARMA +(B) = (1-B) & B Xi 9(B)=1-B+  $\frac{x_{t}}{\sqrt{318}} = \frac{1}{\sqrt{18}} \frac{(\beta)}{\sqrt{18}}$ + (p)= - 2 p + -1 + (1-p) \(\frac{1}{2}\) | pt-Denominator 939 (B) = -+B+-1 lim xf = 1 = Xi was we wand to Those

Juy ? Standard Back propagation update rule: (9++, = 0+ - E To J(0+) Adam optimizer update Ruk:-Mo = 0 , 0 = 0 Step 1:- Compute gradient

Jt = Vol (Ot) Stip 2:- First moment estimate

Me = P2 M 1-1 + (1-Bil 9+ Step3: 3 scood moment Ostinati VE = Be. VE-1 + (1-B2 1. g+2 Jepy: Biasi testimation mê = mt 1 vi = Ut 1-Bt 1-B2+ Step 5: Parameter update mountes Ot +1 = Ot - 2. mt

Reducing adam to SGP Hordand Bulk proportion Jelok B=0 =) m== J+ B=1 =1 V+=V+-1 from optimizer has later Purk: E-30 & stilled in trabajo dugma - 1 gal Of+120+2.3+ =0+-x3+ Style First money extract Since Q=16 cur jui Jens Otel = 0+ = ETO J(0+) To none Adam 2590: Q= E Jep4: 1958 Estimation B2-108 Sanc as 12 Standard Back propagation Jen 6 - 40 = 1+ +() 0 + 50

D ALL DEVENOR 2.) Running time of a stigle teraning Ag: - Increase MODERNE Az: - moreage more B1:- Inclease stations B2:- morease C:- In velay D= Inwan E:- No-effect 19 F:- Freezeward : 5A 2.) Rooms tim of the dearened Mode was As: No effect No effect A2 1-BB B1 i- Invierse B2:- No effect C:- Inviean D:- Sovere 18 E: - No-reffect so No effect F! D: Fromone Eis No effer Total No effect

A1: Deviease Devierse A21-Dewlean B1:-Dewlan B2:-Inclease C:-Incoleage was D:-No effect (:-Invierse F:-Decrease & A1:-B1: Develare

B2: Develare POLE C:- Invierse D:- Devierse E: Invieate 1 F: Increase RS BL: Investe Al: Increase AZ: Inclease BI: - Inviente - a B2: - Lacreage C: Thoreage D: Inclease E: No-effer F? No-effect