

**UTILIZING REAL-TIME NIFTY 50 DATA FOR THE PRACTICAL
IMPLEMENTATION OF FINANCIAL DERIVATIVE INSTRUMENTS AND
STRATEGIES**

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UNDERLYING: ADANI ENTERPRISES LIMITED

A Project Report

submitted in partial fulfilment of the course

MGT1041 – Financial Derivatives

J-Component

**MASTER OF TECHNOLOGY(INTEGRATED)
(CSE IN SPECIALIZATION WITH BUSINESS ANALYTICS)**

UNDER THE GUIDANCE OF

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TASK-1:LONG CALL

Strategy	Long Call Option
Meaning	Purchasing a Right to Purchase at Strike Price
Logic	We enter into a contract at lower strike price as we predict market is going up. And, therefore, we buy cheap and sell high at later point of time

UNDERLYING AS ADANI ENTERPRISES LTD

LTP	118
Lot Size	300
Strike Price	2400 ATM

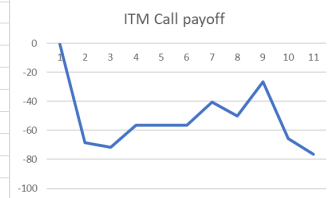
PAYOFF Table				
Strike Price	Nifty Movement	Logic Max(0,Nifty - Strike Price)	Premium	Payoff
2200	2217.3	17.3	-118	-100.7
2200	2200	0	-118	-118
2200	2229.25	29.25	-118	-88.75
2200	2229.25	29.25	-118	-88.75
2200	2229.25	29.25	-118	-88.75
2200	2245.1	45.1	-118	-72.9
2200	2235.45	35.45	-118	-82.55
2200	2259	59	-118	-59
2200	2219.95	19.95	-118	-98.05
2200	2209	9	-118	-109



UNDERLYING AS ADANI ENTERPRISES LTD

LTP	185.55
Lot Size	300
Strike Price	2100 ITM

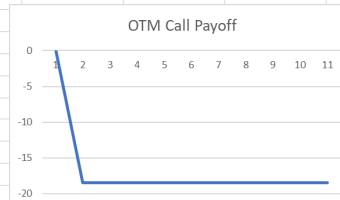
PAYOFF Table				
Strike Price	Nifty Movement	Logic Max(0,Nifty - Strike Price)	Premium	Payoff
2100	2217.3	117.3	-185.55	-68.25
2100	2214	114	-185.55	-71.55
2100	2229.25	129.25	-185.55	-56.3
2100	2229.25	129.25	-185.55	-56.3
2100	2229.25	129.25	-185.55	-56.3
2100	2245.1	145.1	-185.55	-40.45
2100	2235.45	135.45	-185.55	-50.1
2100	2259	159	-185.55	-26.55
2100	2219.95	119.95	-185.55	-65.6
2100	2209	109	-185.55	-76.55



UNDERLYING AS ADANI ENTERPRISES LTD

LTP	18.5
Lot Size	600
Strike Price	2600 OTM

PAYOFF Table				
Strike Price	Nifty Movement	Logic Max(0,Nifty - Strike Price)	Premium	Payoff
2600	2217.3	0	-18.5	-18.5
2600	2214	0	-18.5	-18.5
2600	2229.25	0	-18.5	-18.5
2600	2229.25	0	-18.5	-18.5
2600	2229.25	0	-18.5	-18.5
2600	2245.1	0	-18.5	-18.5
2600	2235.45	0	-18.5	-18.5
2600	2259	0	-18.5	-18.5
2600	2219.95	0	-18.5	-18.5
2600	2209	0	-18.5	-18.5



JUSTIFICATION:

THE BUYER WILL MORE LOSS IF HE FOLLOWS ATM AND ITM STRATEGY

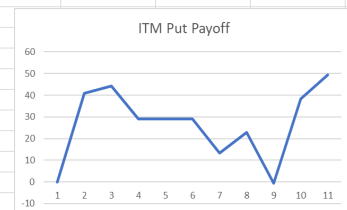
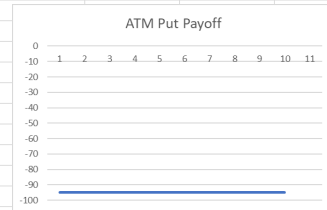
THE BUYER WILL MAKE LESS LOSE IF HE FOLLOWS OTM STRATEGY

				TASK-2:LONG PUT	
Strategy	Long Put				
Meaning	Purchasing a Right to Sell at Strike Price				
Logic	We enter into a contract predicting market is moving down. And, therefore, we sell high at later point of time with higher strike price, when the market price is low at later point of time				
UNDERLYING ASSET	ADANI ENTERPRISES LTD				
LTP	95				
Lot Size	600				
Strike Price	2200		ATM		
PAYOFF Table					
Strike Price	Nifty Movement	Logic Max(0,Nift	Premium	Payoff	
2200	2217.3	0	-95	-95	
2200	2214	0	-95	-95	
2200	2229.25	0	-95	-95	
2200	2229.25	0	-95	-95	
2200	2229.25	0	-95	-95	
2200	2245.1	0	-95	-95	
2200	2235.45	0	-95	-95	
2200	2259	0	-95	-95	
2200	2219.95	0	-95	-95	
2200	2209	0	-95	-95	
UNDERLYING ASSET	ADANI ENTERPRISES LTD				
LTP	17				
Lot Size	600				
Strike Price	1800		OTM		
PAYOFF Table					
Strike Price	Nifty Movement	Logic Max(0,Nift	Premium	Payoff	
1800	2217.3	0	-17	-17	
1800	2214	0	-17	-17	
1800	2229.25	0	-17	-17	
1800	2229.25	0	-17	-17	
1800	2229.25	0	-17	-17	
1800	2245.1	0	-17	-17	
1800	2235.45	0	-17	-17	
1800	2259	0	-17	-17	
1800	2219.95	0	-17	-17	
1800	2209	0	-17	-17	
UNDERLYING ASSET	ADANI ENTERPRISES LTD				
LTP	191.7				
Lot Size	900				
Strike Price	2450		ITM		
PAYOFF Table					
Strike Price	Nifty Movement	Logic Max(0,Nift	Premium	Payoff	
2450	2217.3	232.7	-191.7	41	
2450	2214	236	-191.7	44.3	
2450	2229.25	220.75	-191.7	29.05	
2450	2229.25	220.75	-191.7	29.05	
2450	2229.25	220.75	-191.7	29.05	
2450	2245.1	204.9	-191.7	13.2	
2450	2235.45	214.55	-191.7	22.85	
2450	2259	191	-191.7	-0.7	
2450	2219.95	230.05	-191.7	38.35	
2450	2209	241	-191.7	49.3	
JUSTIFICATION:					
THE SELLER WILL MAKE PROFIT IF HE/SHE FOLLOWS ITM STRATEGY					
THE SELLER WILL MAKE LOSS IF HE/SHE FOLLOWS ATM AND OTM STRATEGY					

ATM Put Payoff

OTM Put Payoff

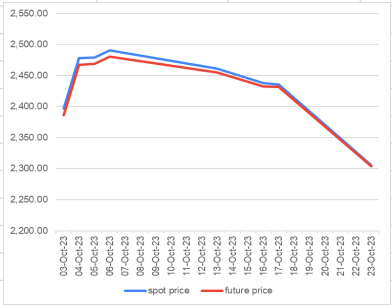
ITM Put Payoff



TASK-3:BLACK SCHOLES OPTION PRICING MODEL				
Spot price:	2217.3			
Strike price:	2200			
t:	0.079452055			
r:	0.073			
sigma:	38.23			
CALCULATION OF CALL PRICE				
$C = \text{Spot} * N(d1) - X * e^{(-rt)} * N(d2)$				
d1 =	$\frac{\ln(S/x) + (r + ((\text{sigma})^2 / 2)) * t}{\text{Sigma} * \text{sqrt}(t)}$			
d1=	5.4			
N(d1)=	1			
d2=	$d1 - \text{sigma} * \text{sqrt}(t)$			
d2=	-5.37			
N(d2)=	0.000000036			
Call price:	2217.29			
COMMENT:Calculated ltp is greater than actual ltp so market is cheap				
TASK-4:CALL-PUT PARITY				
Spot price:	2217.3			
Strike price:	2200			
t:	0.079452055			
r:	0.073			
sigma:	38.23			
Call price:	2217.29			
CALCULATION OF PUT PRICE				
Put Price = Call Price+ PV (Strike) - Stock				
Put price=	2187.33			
COMMENT:Calculated ltp is greater than actual ltp so market is cheap				

TASK-5:FUTURES-PRINCIPLE OF CONVERGENCE										
DATE	03-Oct-23	04-Oct-23	05-Oct-23	06-Oct-23	13-Oct-23	16-Oct-23	17-Oct-23	23-Oct-23	25-Oct-23	26-Oct-23
SPOT PRICE	2,396.90	2,478.40	2,478.90	2,490.35	2,461.20	2,437.50	2,435.75	2,305.35	2,258.20	2,198.80
e	2.718	2.718	2.718	2.718	2.718	2.718	2.718	2.718	2.718	2.718
r	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073
t	0.063013699	0.060273973	0.057534247	0.054794521	0.035616438	0.02739726	0.024657534	0.008219178	0.002739726	0
r*t	0.0046	0.0044	0.0042	0.004	0.0026	0.002	0.0018	0.0006	0.0002	0
e^(-r*t)	0.995411039	0.99561012	0.995809241	0.996008402	0.997403646	0.998002206	0.998201805	0.999400242	0.999800041	1
Fo	2385.900718	2467.520121	2468.511528	2480.409525	2454.809853	2432.630376	2431.370047	2303.967348	2257.748452	2198.8

GRAPH FOR CONVERGENCE



At the end of expiry date of contract,the spot price will be equal to future price this is known as convergence

TASK-6:MARK TO MARGIN					
position	long				
strike price	2519				
lot size	300				
total margin cost	755700				
initial margin	302280				
maintainance margin	211596				
date	settlement price	gain/loss	cummulative of	margin call	margin ac balance
contract price	2519	-	-	-	302280
12-Oct-23	2,518.35	-195	-195	-	302085
13-Oct-23	2,461.20	-17145	-17340	-	284940
16-Oct-23	2,437.50	-7110	-24450	-	277830
17-Oct-23	2,435.75	-525	-24975	-	277305
18-Oct-23	2,410.40	-7605	-32580	-	269700
19-Oct-23	2,405.15	-1575	-34155	-	268125
20-Oct-23	2,395.85	-2790	-36945	-	265335
23-Oct-23	2,305.35	-27150	-64095	-	238185
25-Oct-23	2,258.20	-14145	-78240	-	224040
26-Oct-23	2,198.80	-17820	-96060	96060	302280
COMMENT:IF WE TAKE LONG POSITION WE WILL MAKE NET LOSS OF -96060					
position	short				
strike price	2519				
lot size	300				
total margin cost	755700				
initial margin	302280				
maintainance margin	211596				
date	settlement price	gain/loss	cummulative gain	margin call	margin a/c balance
contract price	2519	-	-	-	302280
12-Oct-23	2,518.35	195	195	-	302475
13-Oct-23	2,461.20	17145	17340	-	319620
16-Oct-23	2,437.50	7110	24450	-	326730
17-Oct-23	2,435.75	525	24975	-	327255
18-Oct-23	2,410.40	7605	32580	-	334860
19-Oct-23	2,405.15	1575	34155	-	336435
20-Oct-23	2,395.85	2790	36945	-	339225
23-Oct-23	2,305.35	27150	64095	-	366375
25-Oct-23	2,258.20	14145	78240	-	380520
26-Oct-23	2,198.80	17820	96060	-	398340
COMMENT:IF WE TAKE SHORT POSITION WE WILL MAKE NET PROFIT OF 96060					

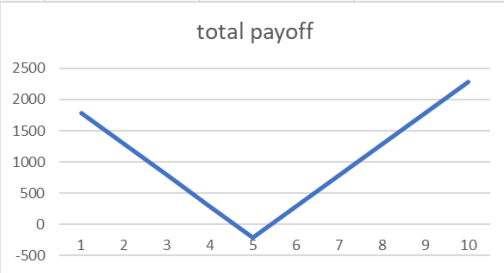
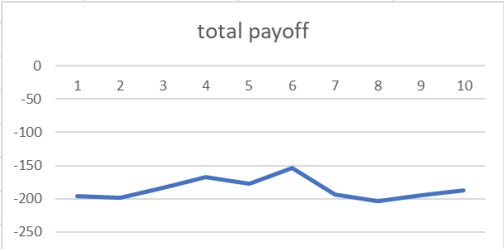
TASK-7:LONG STRADDLE						
ACTUAL VALUE						
strike	spot	call ltp	put ltp	call payoff	put payoff	total payoff
2200	2217.3	118	95	-100.7	-95	-195.7
2200	2214	118	95	-104	-95	-199
2200	2229.25	118	95	-88.75	-95	-183.75
2200	2245.1	118	95	-72.9	-95	-167.9
2200	2235.45	118	95	-82.55	-95	-177.55
2200	2259	118	95	-59	-95	-154
2200	2219.95	118	95	-98.05	-95	-193.05
2200	2209	118	95	-109	-95	-204
2200	2218	118	95	-100	-95	-195
2200	2225.4	118	95	-92.6	-95	-187.6
THEORITICAL VALUE						
strike	spot	call ltp	put ltp	call payoff	put payoff	total payoff
2200	200	118	95	-118	1905	1787
2200	700	118	95	-118	1405	1287
2200	1200	118	95	-118	905	787
2200	1700	118	95	-118	405	287
2200	2200	118	95	-118	-95	-213
2200	2700	118	95	382	-95	287
2200	3200	118	95	882	-95	787
2200	3700	118	95	1382	-95	1287
2200	4200	118	95	1882	-95	1787
2200	4700	118	95	2382	-95	2287
BREAKEVEN POINT						
STRIKE+TOTAL LTP		2413				
STRIKE-TOTAL LTP		1987				
JUSTIFICATION						
WE CANNOT TAKE LONG STRADDLE FOR THIS UNDERLYING ASSET.IT WILL LEADS TO LO LOSS						

total payoff

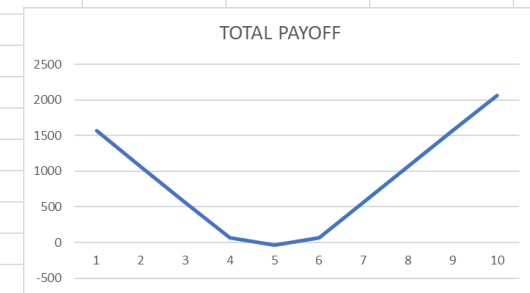
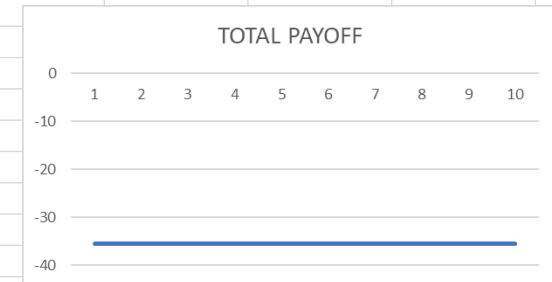
Spot	Total Payoff
1	-200
2	-205
3	-180
4	-165
5	-175
6	-150
7	-190
8	-200
9	-190
10	-187.6

total payoff

Spot	Total Payoff
1	1787
2	1287
3	787
4	287
5	-213
6	287
7	787
8	1287
9	1787
10	2287



TASK-8:LONG STRANGLE									
ACTUAL VALUE									
CALL STRIKE	PUT STRIKE	SPOT	CALL LTP	PUT LTP	CALL PAYOFF	PUT PAYOFF	TOTAL PAYOFF		
2600	1800	2217.3	18.5	17	-18.5	-17	-35.5		
2600	1800	2214	18.5	17	-18.5	-17	-35.5		
2600	1800	2229.25	18.5	17	-18.5	-17	-35.5		
2600	1800	2245.1	18.5	17	-18.5	-17	-35.5		
2600	1800	2235.45	18.5	17	-18.5	-17	-35.5		
2600	1800	2259	18.5	17	-18.5	-17	-35.5		
2600	1800	2219.95	18.5	17	-18.5	-17	-35.5		
2600	1800	2209	18.5	17	-18.5	-17	-35.5		
2600	1800	2218	18.5	17	-18.5	-17	-35.5		
2600	1800	2225.4	18.5	17	-18.5	-17	-35.5		
THEORITICAL VALUE									
CALL STRIKE	PUT STRIKE	SPOT	CALL LTP	PUT LTP	CALL PAYOFF	PUT PAYOFF	TOTAL PAYOFF		
2600	1800	200	18.5	17	-18.5	1583	1564.5		
2600	1800	700	18.5	17	-18.5	1083	1064.5		
2600	1800	1200	18.5	17	-18.5	583	564.5		
2600	1800	1700	18.5	17	-18.5	83	64.5		
2600	1800	2200	18.5	17	-18.5	-17	-35.5		
2600	1800	2700	18.5	17	81.5	-17	64.5		
2600	1800	3200	18.5	17	581.5	-17	564.5		
2600	1800	3700	18.5	17	1081.5	-17	1064.5		
2600	1800	4200	18.5	17	1581.5	-17	1564.5		
2600	1800	4700	18.5	17	2081.5	-17	2064.5		
BREAK EVEN POINT									
CALL STRIKE+TOTAL LTP		2635.5							
CALL STRIKE-TOTAL LTP		2564.5							
PUT STRIKE+TOTAL LTP		1835.5							
PUT STRIKE-TOTAL LTP		1764.5							
JUSTIFICATION									
WE CANNOT TAKE LONG STRADDLE FOR THIS UNDERLYING ASSET IT WILL LEADS					TO LOSS				



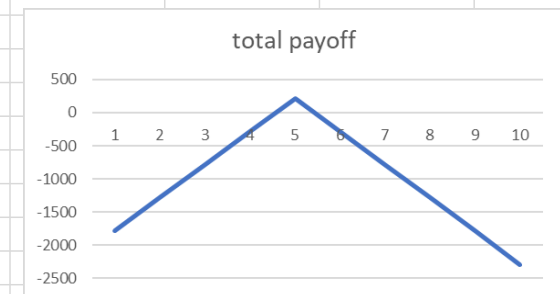
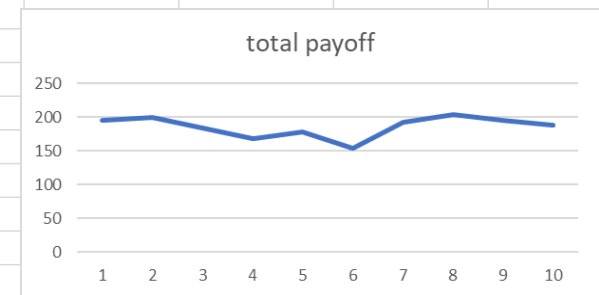
TASK-9:SHORT STRADDLE						
ACTUAL VALUE						
strike	spot	call ltp	put ltp	call payoff	put payoff	total payoff
2200	2217.3	118	95	100.7	95	195.7
2200	2214	118	95	104	95	199
2200	2229.25	118	95	88.75	95	183.75
2200	2245.1	118	95	72.9	95	167.9
2200	2235.45	118	95	82.55	95	177.55
2200	2259	118	95	59	95	154
2200	2219.95	118	95	98.05	95	193.05
2200	2209	118	95	109	95	204
2200	2218	118	95	100	95	195
2200	2225.4	118	95	92.6	95	187.6
THEORITICAL VALUE						
strike	spot	call ltp	put ltp	call payoff	put payoff	total payoff
2200	200	118	95	118	-1905	-1787
2200	700	118	95	118	-1405	-1287
2200	1200	118	95	118	-905	-787
2200	1700	118	95	118	-405	-287
2200	2200	118	95	118	95	213
2200	2700	118	95	-382	95	-287
2200	3200	118	95	-882	95	-787
2200	3700	118	95	-1382	95	-1287
2200	4200	118	95	-1882	95	-1787
2200	4700	118	95	-2382	95	-2287
BREAKEVEN POINT						
STRIKE+TOTAL LTP		2413				
STRIKE-TOTAL LTP		1987				
JUSTIFICATION						
WE CAN TAKE LONG STRADDLE FOR THIS UNDERLYING ASSET.IT WILL LEADS TO PROFIT						

total payoff

spot	total payoff
1	195.7
2	199
3	183.75
4	167.9
5	177.55
6	154
7	193.05
8	204
9	195
10	187.6

total payoff

spot	total payoff
1	-1787
2	-1287
3	-787
4	-287
5	213
6	-287
7	-787
8	-1287
9	-1787
10	-2287



TASK-10:SHORT STRANGLE							
ACTUAL VALUE							
CALL STRIKE	PUT STRIKE	SPOT	CALL LTP	PUT LTP	CALL PAYOFF	PUT PAYOFF	TOTAL PAYOFF
2600	1800	2217.3	18.5	17	18.5	17	35.5
2600	1800	2214	18.5	17	18.5	17	35.5
2600	1800	2229.25	18.5	17	18.5	17	35.5
2600	1800	2245.1	18.5	17	18.5	17	35.5
2600	1800	2235.45	18.5	17	18.5	17	35.5
2600	1800	2259	18.5	17	18.5	17	35.5
2600	1800	2219.95	18.5	17	18.5	17	35.5
2600	1800	2209	18.5	17	18.5	17	35.5
2600	1800	2218	18.5	17	18.5	17	35.5
2600	1800	2225.4	18.5	17	18.5	17	35.5
THEORITICAL VALUE							
CALL STRIKE	PUT STRIKE	SPOT	CALL LTP	PUT LTP	CALL PAYOFF	PUT PAYOFF	TOTAL PAYOFF
2600	1800	200	18.5	17	18.5	-1583	-1564.5
2600	1800	700	18.5	17	18.5	-1083	-1064.5
2600	1800	1200	18.5	17	18.5	-583	-564.5
2600	1800	1700	18.5	17	18.5	-83	-64.5
2600	1800	2200	18.5	17	18.5	17	35.5
2600	1800	2700	18.5	17	-81.5	17	-64.5
2600	1800	3200	18.5	17	-581.5	17	-564.5
2600	1800	3700	18.5	17	-1081.5	17	-1064.5
2600	1800	4200	18.5	17	-1581.5	17	-1564.5
2600	1800	4700	18.5	17	-2081.5	17	-2064.5
BREAK EVEN POINT							
CALL STRIKE+TOTAL LTP		2635.5					
CALL STRIKE-TOTAL LTP		2564.5					
PUT STRIKE+TOTAL LTP		1835.5					
PUT STRIKE-TOTAL LTP		1764.5					
JUSTIFICATION							
WE CAN TAKE LONG STRADDLE FOR THIS UNDERLYING ASSET IT WILL LEADS				TO PROFIT			

