

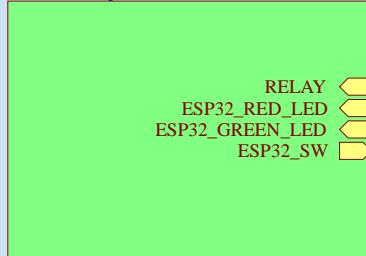
Main Block Diagram

NFC READER

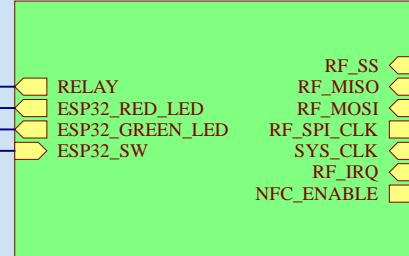
Power Supply Schematic



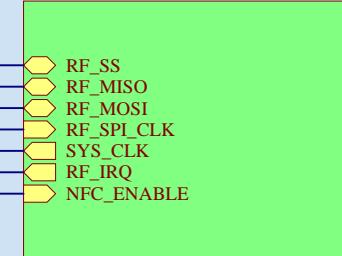
Relay-Switch Schematic



Main ESP32 Schematic



RF-ID Schematic



Title **Main Block Diagram OF NFC READER**



Size **A**

Number

Revision

V.1

Date: **11/16/2025**

Sheet of

1

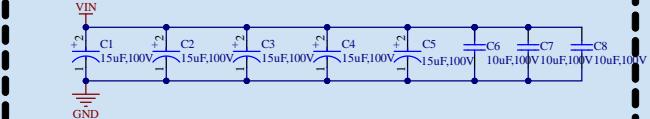
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Drawn By:

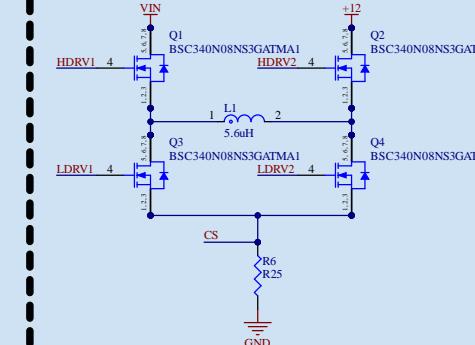
Ahmed Elhady

Power Supply Schematic

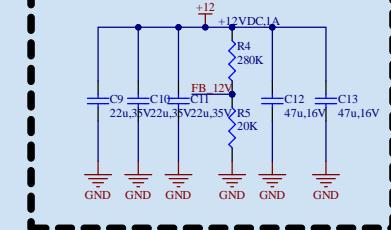
Input Voltage (+10VDC to +24VDC) Decoupling Circuit



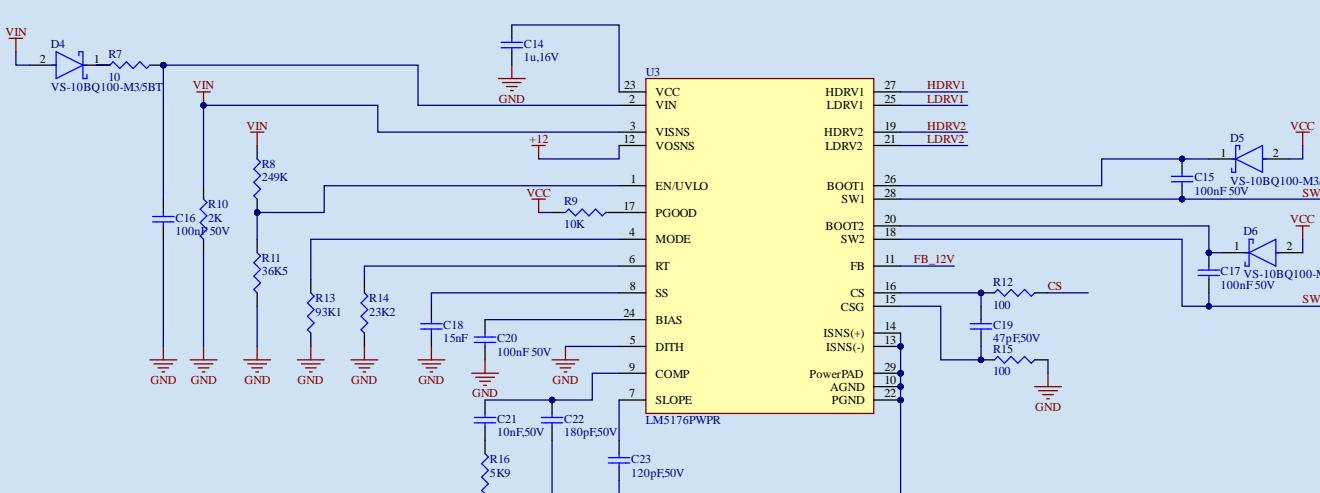
+12VDC Buck-Boost Switching Circuit



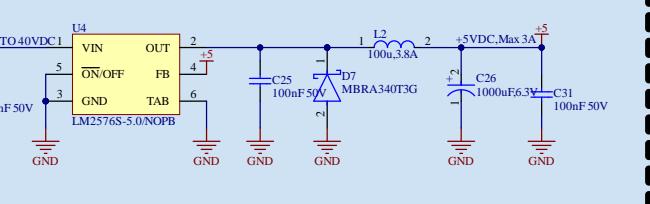
+12VDC Decoupling Circuit



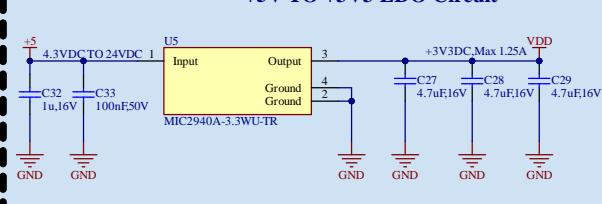
Main Buck-Boost Circuit



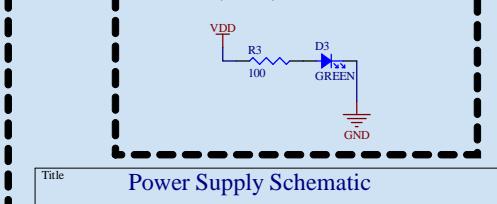
+12V to +5V Buck Circuit



+5V TO +3V3 LDO Circuit



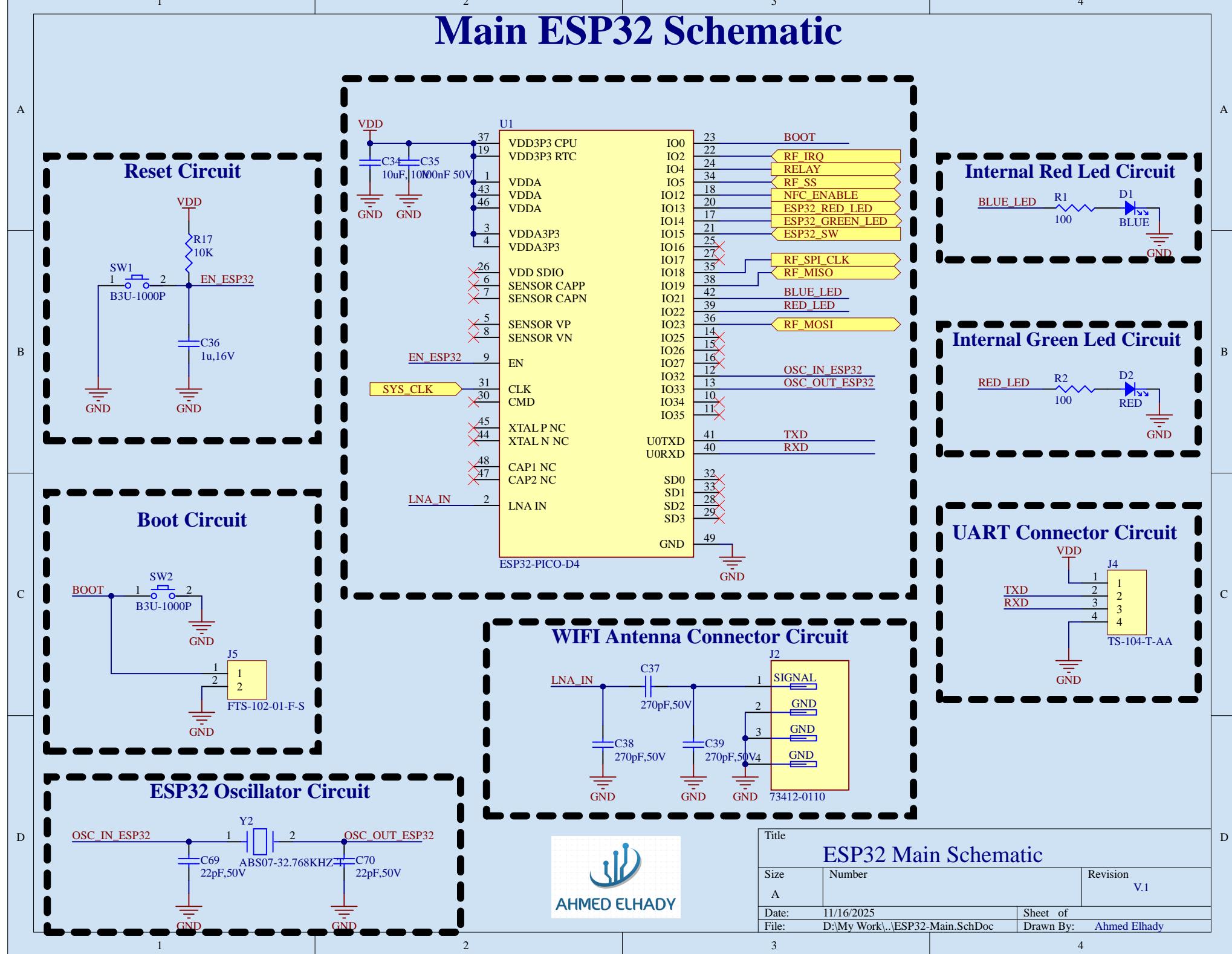
VDD(+3V3) Indication Circuit



Title: Power Supply Schematic

Size	Number	Revision
A3		V.1
Date:	11/16/2025	Sheet of
File:	D:\My Work\Power Supply.SchDoc	Drawn By: Ahmed Elhaday

Main ESP32 Schematic



1

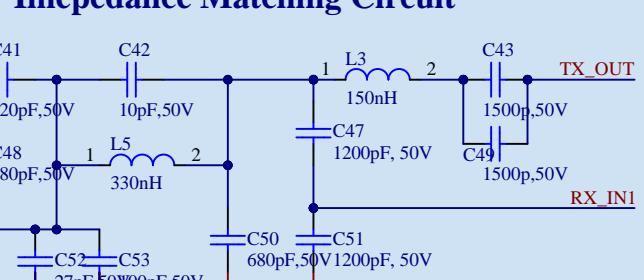
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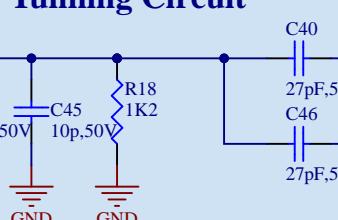
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RFID-Schematic

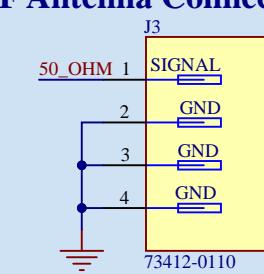
Impedance Matching Circuit



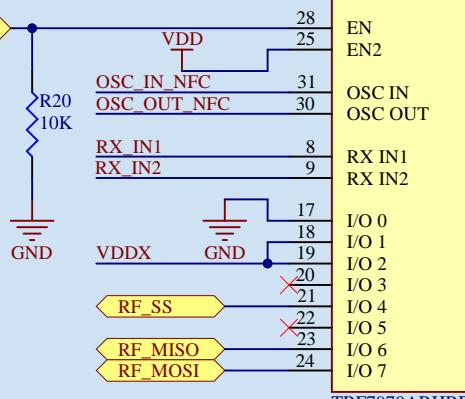
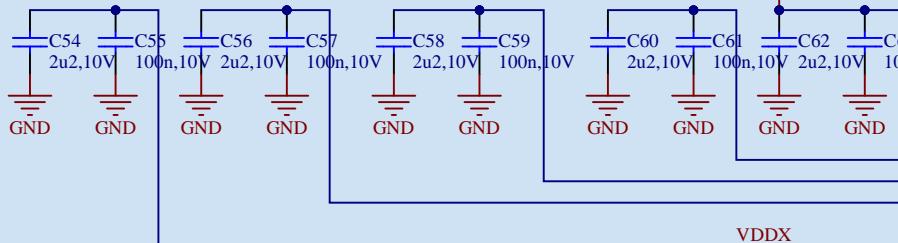
Tunning Circuit



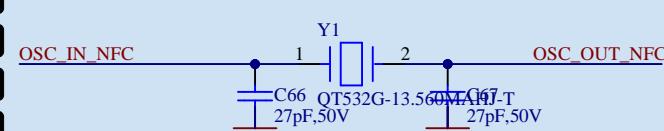
RF Antenna Connector



RF-ID Main Circuit



NFC Oscillator Circuit



RFID-Schematic

Title		
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Date:	11/16/2025	Sheet of
File:	D:\My Work\RFID-Reader.SchDoc	Drawn By: Ahmed Elhady

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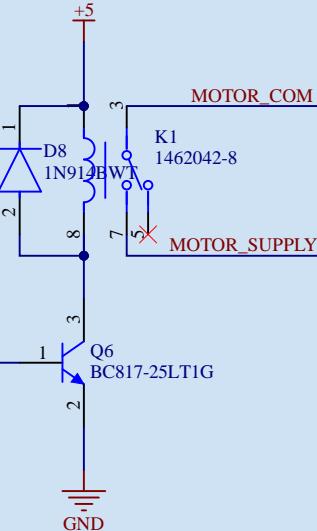
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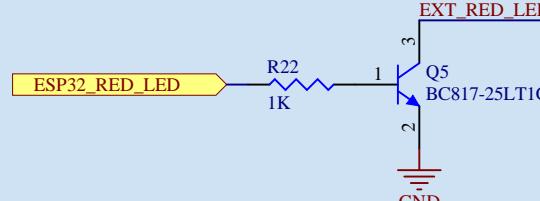
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Relay-Switch Schematic

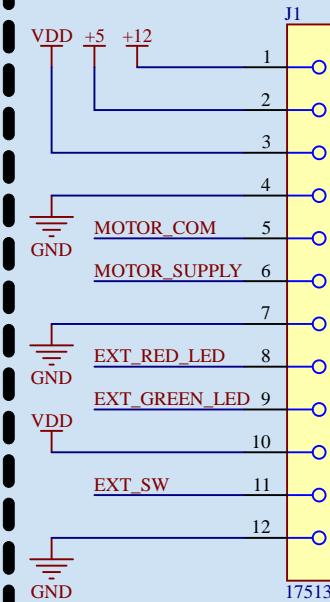
Relay Control Circuit



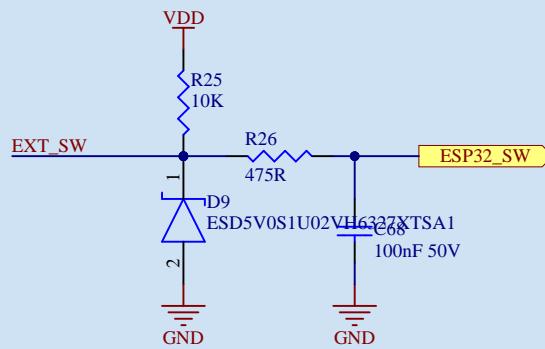
Ext. Red Led Circuit



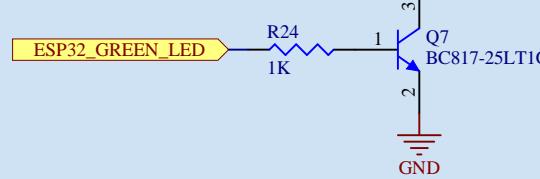
I/O Connector Circuit



External Swirch Circuit



Ext. Red Green Circuit



Title

Relay and Switch Schematic



Size	Number	Revision
A		V.1
Date:	11/16/2025	Sheet of
File:	D:\My Work\Relay-Switch.SchDoc	Drawn By: Ahmed Elhady

GND SW +3V3 GLED RLED GND M-NO M-COM GND +3V3 +5V +12V

GND RXD TXD +3V3

USR

RESET

Ref	Ref ID	Ref Name	Ref Type	Ref Description	Ref Status	Ref Date
Ref 1001	REF-1001	Project Alpha	Project	Phase 1: Initial planning and design.	Active	2023-01-01
Ref 1002	REF-1002	Task A	Task	Sub-task 1: Research market trends.	Completed	2023-01-05
Ref 1003	REF-1003	Task B	Task	Sub-task 2: Identify key stakeholders.	Completed	2023-01-06
Ref 1004	REF-1004	Task C	Task	Sub-task 3: Develop project scope.	Completed	2023-01-07
Ref 1005	REF-1005	Task D	Task	Sub-task 4: Create timeline.	Completed	2023-01-08
Ref 1006	REF-1006	Task E	Task	Sub-task 5: Assign team members.	Completed	2023-01-09
Ref 1007	REF-1007	Task F	Task	Sub-task 6: Secure funding.	Completed	2023-01-10
Ref 1008	REF-1008	Task G	Task	Sub-task 7: Finalize contract.	Completed	2023-01-11
Ref 1009	REF-1009	Task H	Task	Sub-task 8: Start development phase.	Completed	2023-01-12
Ref 1010	REF-1010	Task I	Task	Sub-task 9: Monitor progress.	Completed	2023-01-13
Ref 1011	REF-1011	Task J	Task	Sub-task 10: Implement changes.	Completed	2023-01-14
Ref 1012	REF-1012	Task K	Task	Sub-task 11: Review results.	Completed	2023-01-15
Ref 1013	REF-1013	Task L	Task	Sub-task 12: Plan next iteration.	Completed	2023-01-16
Ref 1014	REF-1014	Task M	Task	Sub-task 13: Document findings.	Completed	2023-01-17
Ref 1015	REF-1015	Task N	Task	Sub-task 14: Present findings.	Completed	2023-01-18
Ref 1016	REF-1016	Task O	Task	Sub-task 15: Finalize report.	Completed	2023-01-19
Ref 1017	REF-1017	Task P	Task	Sub-task 16: Submit report.	Completed	2023-01-20
Ref 1018	REF-1018	Task Q	Task	Sub-task 17: Follow-up with clients.	Completed	2023-01-21
Ref 1019	REF-1019	Task R	Task	Sub-task 18: Update project plan.	Completed	2023-01-22
Ref 1020	REF-1020	Task S	Task	Sub-task 19: Start planning Phase 2.	Completed	2023-01-23
Ref 1021	REF-1021	Task T	Task	Sub-task 20: Identify new challenges.	Completed	2023-01-24
Ref 1022	REF-1022	Task U	Task	Sub-task 21: Develop mitigation strategies.	Completed	2023-01-25
Ref 1023	REF-1023	Task V	Task	Sub-task 22: Implement changes.	Completed	2023-01-26
Ref 1024	REF-1024	Task W	Task	Sub-task 23: Monitor progress.	Completed	2023-01-27
Ref 1025	REF-1025	Task X	Task	Sub-task 24: Review results.	Completed	2023-01-28
Ref 1026	REF-1026	Task Y	Task	Sub-task 25: Plan next iteration.	Completed	2023-01-29
Ref 1027	REF-1027	Task Z	Task	Sub-task 26: Document findings.	Completed	2023-01-30
Ref 1028	REF-1028	Task AA	Task	Sub-task 27: Present findings.	Completed	2023-01-31
Ref 1029	REF-1029	Task BB	Task	Sub-task 28: Finalize report.	Completed	2023-02-01
Ref 1030	REF-1030	Task CC	Task	Sub-task 29: Submit report.	Completed	2023-02-02
Ref 1031	REF-1031	Task DD	Task	Sub-task 30: Follow-up with clients.	Completed	2023-02-03
Ref 1032	REF-1032	Task EE	Task	Sub-task 31: Update project plan.	Completed	2023-02-04
Ref 1033	REF-1033	Task FF	Task	Sub-task 32: Start planning Phase 3.	Completed	2023-02-05
Ref 1034	REF-1034	Task GG	Task	Sub-task 33: Identify new challenges.	Completed	2023-02-06
Ref 1035	REF-1035	Task HH	Task	Sub-task 34: Develop mitigation strategies.	Completed	2023-02-07
Ref 1036	REF-1036	Task II	Task	Sub-task 35: Implement changes.	Completed	2023-02-08
Ref 1037	REF-1037	Task JJ	Task	Sub-task 36: Monitor progress.	Completed	2023-02-09
Ref 1038	REF-1038	Task KK	Task	Sub-task 37: Review results.	Completed	2023-02-10
Ref 1039	REF-1039	Task LL	Task	Sub-task 38: Plan next iteration.	Completed	2023-02-11
Ref 1040	REF-1040	Task MM	Task	Sub-task 39: Document findings.	Completed	2023-02-12
Ref 1041	REF-1041	Task NN	Task	Sub-task 40: Present findings.	Completed	2023-02-13
Ref 1042	REF-1042	Task OO	Task	Sub-task 41: Finalize report.	Completed	2023-02-14
Ref 1043	REF-1043	Task PP	Task	Sub-task 42: Submit report.	Completed	2023-02-15
Ref 1044	REF-1044	Task QQ	Task	Sub-task 43: Follow-up with clients.	Completed	2023-02-16
Ref 1045	REF-1045	Task RR	Task	Sub-task 44: Update project plan.	Completed	2023-02-17
Ref 1046	REF-1046	Task SS	Task	Sub-task 45: Start planning Phase 4.	Completed	2023-02-18
Ref 1047	REF-1047	Task TT	Task	Sub-task 46: Identify new challenges.	Completed	2023-02-19
Ref 1048	REF-1048	Task UU	Task	Sub-task 47: Develop mitigation strategies.	Completed	2023-02-20
Ref 1049	REF-1049	Task VV	Task	Sub-task 48: Implement changes.	Completed	2023-02-21
Ref 1050	REF-1050	Task WW	Task	Sub-task 49: Monitor progress.	Completed	2023-02-22
Ref 1051	REF-1051	Task XX	Task	Sub-task 50: Review results.	Completed	2023-02-23
Ref 1052	REF-1052	Task YY	Task	Sub-task 51: Plan next iteration.	Completed	2023-02-24
Ref 1053	REF-1053	Task ZZ	Task	Sub-task 52: Document findings.	Completed	2023-02-25
Ref 1054	REF-1054	Task AAA	Task	Sub-task 53: Present findings.	Completed	2023-02-26
Ref 1055	REF-1055	Task BBB	Task	Sub-task 54: Finalize report.	Completed	2023-02-27
Ref 1056	REF-1056	Task CCC	Task	Sub-task 55: Submit report.	Completed	2023-02-28
Ref 1057	REF-1057	Task DDD	Task	Sub-task 56: Follow-up with clients.	Completed	2023-02-29
Ref 1058	REF-1058	Task EEE	Task	Sub-task 57: Update project plan.	Completed	2023-03-01
Ref 1059	REF-1059	Task FFF	Task	Sub-task 58: Start planning Phase 5.	Completed	2023-03-02
Ref 1060	REF-1060	Task GGG	Task	Sub-task 59: Identify new challenges.	Completed	2023-03-03
Ref 1061	REF-1061	Task HHH	Task	Sub-task 60: Develop mitigation strategies.	Completed	2023-03-04
Ref 1062	REF-1062	Task III	Task	Sub-task 61: Implement changes.	Completed	2023-03-05
Ref 1063	REF-1063	Task JJJ	Task	Sub-task 62: Monitor progress.	Completed	2023-03-06
Ref 1064	REF-1064	Task KKK	Task	Sub-task 63: Review results.	Completed	2023-03-07
Ref 1065	REF-1065	Task LLL	Task	Sub-task 64: Plan next iteration.	Completed	2023-03-08
Ref 1066	REF-1066	Task MLL	Task	Sub-task 65: Document findings.	Completed	2023-03-09
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Ref 1068	REF-1068	Task OLL	Task	Sub-task 67: Finalize report.	Completed	2023-03-11
Ref 1069	REF-1069	Task PLL	Task	Sub-task 68: Submit report.	Completed	2023-03-12
Ref 1070	REF-1070	Task QLL	Task	Sub-task 69: Follow-up with clients.	Completed	2023-03-13
Ref 1071	REF-1071	Task RLL	Task	Sub-task 70: Update project plan.	Completed	2023-03-14
Ref 1072	REF-1072	Task SLL	Task	Sub-task 71: Start planning Phase 6.	Completed	2023-03-15
Ref 1073	REF-1073	Task TLL	Task	Sub-task 72: Identify new challenges.	Completed	2023-03-16
Ref 1074	REF-1074	Task ULL	Task	Sub-task 73: Develop mitigation strategies.	Completed	2023-03-17
Ref 1075	REF-1075	Task VLL	Task	Sub-task 74: Implement changes.	Completed	2023-03-18
Ref 1076	REF-1076	Task WLL	Task	Sub-task 75: Monitor progress.	Completed	2023-03-19
Ref 1077	REF-1077	Task XLL	Task	Sub-task 76: Review results.	Completed	2023-03-20
Ref 1078	REF-1078	Task YLL	Task	Sub-task 77: Plan next iteration.	Completed	2023-03-21
Ref 1079	REF-1079	Task ZLL	Task	Sub-task 78: Document findings.	Completed	2023-03-22
Ref 1080	REF-1080	Task ALL	Task	Sub-task 79: Present findings.	Completed	2023-03-23
Ref 1081	REF-1081	Task BLL	Task	Sub-task 80: Finalize report.	Completed	2023-03-24
Ref 1082	REF-1082	Task CLL	Task	Sub-task 81: Submit report.	Completed	2023-03-25
Ref 1083	REF-1083	Task DLL	Task	Sub-task 82: Follow-up with clients.	Completed	2023-03-26
Ref 1084	REF-1084	Task ELL	Task	Sub-task 83: Update project plan.	Completed	2023-03-27
Ref 1085	REF-1085	Task FLL	Task	Sub-task 84: Start planning Phase 7.	Completed	2023-03-28
Ref 1086	REF-1086	Task GLL	Task	Sub-task 85: Identify new challenges.	Completed	2023-03-29
Ref 1087	REF-1087	Task HLL	Task	Sub-task 86: Develop mitigation strategies.	Completed	2023-03-30
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Ref 1094	REF-1094	Task OLL	Task	Sub-task 93: Finalize report.	Completed	2023-04-06
Ref 1095	REF-1095	Task PLL	Task	Sub-task 94: Submit report.	Completed	2023-04-07
Ref 1096	REF-1096	Task QLL	Task	Sub-task 95: Follow-up with clients.	Completed	2023-04-08
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Ref 1101	REF-1101	Task VLL	Task	Sub-task 100: Implement changes.	Completed	2023-04-13
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Ref 1103	REF-1103	Task XLL	Task	Sub-task 102: Review results.	Completed	2023-04-15
Ref 1104	REF-1104	Task YLL	Task	Sub-task 103: Plan next iteration.	Completed	2023-04-16
Ref 1105	REF-1105	Task ZLL	Task	Sub-task 104: Document findings.	Completed	2023-04-17
Ref 1106	REF-1106	Task ALL	Task	Sub-task 105: Present findings.	Completed	2023-04-18
Ref 1107	REF-1107	Task BLL	Task	Sub-task 106: Finalize report.	Completed	2023-04-19
Ref 1108	REF-1108	Task CLL	Task	Sub-task 107: Submit report.	Completed	2023-04-20
Ref 1109	REF-1109	Task DLL	Task	Sub-task 108: Follow-up with clients.	Completed	2023-04-21
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Ref 1111	REF-1111	Task FLL	Task	Sub-task 110: Start planning Phase 9.	Completed	2023-04-23
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Ref 1113	REF-1113	Task HLL	Task	Sub-task 112: Develop mitigation strategies.	Completed	2023-04-25
Ref 1114	REF-1114	Task ILL	Task	Sub-task 113: Implement changes.	Completed	2023-04-26
Ref 1115	REF-1115	Task JLL	Task	Sub-task 114: Monitor progress.	Completed	2023-04-27
Ref 1116	REF-1116	Task KLL	Task	Sub-task 115: Review results.	Completed	2023-04-28
Ref 1117	REF-1117	Task LLL	Task	Sub-task 116: Plan next iteration.	Completed	2023-04-29
Ref 1118	REF-1118	Task MLL	Task	Sub-task 117: Document findings.	Completed	2023-04-30
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Ref 1121	REF-1121	Task PLL	Task	Sub-task 120: Submit report.	Completed	2023-05-03
Ref 1122	REF-1122	Task QLL	Task	Sub-task 121: Follow-up with clients.	Completed	2023-05-04
Ref 1123	REF-1123	Task RLL	Task	Sub-task 122: Update project plan.	Completed	2023-05-05
Ref 1124	REF-1124	Task SLL	Task	Sub-task 123: Start planning Phase 10.	Completed	2023-05-06
Ref 1125	REF-1125	Task TLL	Task	Sub-task 124: Identify new challenges.	Completed	2023-05-07
Ref 1126	REF-1126	Task ULL	Task	Sub-task 125: Develop mitigation strategies.	Completed	2023-05-08
Ref 1127	REF-1127	Task VLL	Task	Sub-task 126: Implement changes.	Completed	2023-05-09
Ref 1128	REF-1128	Task WLL	Task	Sub-task 127: Monitor progress.	Completed	2023-05-10
Ref 1129	REF-1129	Task XLL	Task	Sub-task 128: Review results.	Completed	2023-05-11
Ref 1130	REF-1130	Task YLL	Task	Sub-task 129: Plan next iteration.	Completed	2023-05-12
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Ref 1133	REF-1133	Task BLL	Task	Sub-task 132: Finalize report.	Completed	2023-05-15
Ref 1134	REF-1134	Task CLL	Task	Sub-task 133: Submit report.	Completed	2023-05-16
Ref 1135	REF-1135	Task DLL	Task	Sub-task 134: Follow-up with clients.	Completed	2023-05-17
Ref 1136	REF-1136	Task ELL	Task	Sub-task 135: Update project plan.	Completed	2023-05-18
Ref 1137	REF-1137	Task FLL	Task	Sub-task 136: Start planning Phase 11.	Completed	2023-05-19
Ref 1138	REF-1138	Task GLL	Task	Sub-task 137: Identify new challenges.	Completed	2023-05-20
Ref 1139	REF-1139	Task HLL	Task	Sub-task 138: Develop mitigation strategies.	Completed	2023-05-21
Ref 1140	REF-1140	Task ILL	Task	Sub-task 139: Implement changes.	Completed	2023-05-22
Ref 1141	REF-1141	Task JLL	Task	Sub-task 140: Monitor progress.	Completed	2023-05-23
Ref 1142	REF-1142	Task KLL	Task	Sub-task 141: Review results.	Completed	2023-05-24
Ref 1143	REF-1143	Task LLL	Task	Sub-task 142: Plan next iteration.	Completed	2023-05-25
Ref 1144	REF-1144	Task MLL	Task	Sub-task 143: Document findings.	Completed	2023-05-26
Ref 1145	REF-1145	Task NLL	Task	Sub-task 144: Present findings.	Completed	2023-05-27
Ref 1146	REF-1146	Task OLL	Task	Sub-task 145: Finalize report.	Completed	2023-05-28
Ref 1147	REF-1147	Task PLL	Task	Sub-task 146: Submit report.	Completed	2023-05-29
Ref 1148	REF-1148	Task QLL	Task	Sub-task 147: Follow-up with clients.	Completed	2023-05-30
Ref 1149	REF-1149	Task RLL	Task	Sub-task 148: Update project plan.	Completed	2023-05-31
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Ref 1152	REF-1152	Task ULL	Task	Sub-task 151: Develop mitigation strategies.	Completed	2023-06-03
Ref 1153	REF-1153	Task VLL	Task	Sub-task 152: Implement changes.	Completed	2023-06-04
Ref 1154	REF-1154	Task WLL	Task	Sub-task 153: Monitor progress.	Completed	2023-06-05
Ref 1155	REF-1155	Task XLL	Task	Sub-task 154: Review results.	Completed	2023-06-06
Ref 1156	REF-1156	Task YLL	Task	Sub-task 155: Plan next iteration.	Completed	2023-06-07
Ref 1157	REF-1157	Task ZLL	Task	Sub-task 156: Document findings.	Completed	2023-06-08
Ref 1158	REF-1158	Task ALL	Task	Sub-task 157: Present findings.	Completed	2023-06-09
Ref 1159	REF-1159	Task BLL	Task	Sub-task 158: Finalize report.	Completed	2023-06-10
Ref 1160	REF-1160	Task CLL	Task	Sub-task 159: Submit report.	Completed	2023-06-11
Ref 1161	REF-1161	Task DLL	Task	Sub-task 160: Follow-up with clients.	Completed	2023-06-12
Ref 1162	REF-1162	Task ELL	Task			