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LAMPIRAN

LAMPIRAN 1

- Tampilan halaman *New Project*

The screenshot shows the 'New Project' form in the Eth-Crowdfunding application. The header is green with the text 'Eth-Crowdfunding' and navigation links for 'New Project', 'Project List', and a user ID '0xb4831F5F23604a3C2066c777Af5ae0CfEeb1c752'. The form itself is white and contains the following fields:

- Title**: A text input field.
- Fund Goal**: A text input field with a note below it: 'In Ether Currency. Example : 2 Eth'.
- Funding Duration**: A text input field with a note below it: 'Days'.
- Description**: A text input field.

A blue 'SUBMIT' button with a right-pointing arrow is located at the bottom right of the form.

- Tampilan halaman *Project List*

The screenshot shows the 'Project List' page in the Eth-Crowdfunding application. The header is green with the text 'Eth-Crowdfunding' and navigation links for 'New Project', 'Project List', and a user ID '0xb4831F5F23604a3C2066c777Af5ae0CfEeb1c752'. Below the header, there are three project cards, each featuring the Ethereum logo at the top.

- Card 1:** Title 'Selamatkan Nyawa Sesama!...', description 'Penyebaran virus corona di Indonesia terus meluas. Dampak virus ini sangat mengkhawatirkan...', status 'FAILED', and a 'DETAIL' link.
- Card 2:** Title 'Lawan Corona: Sembako Untuk Peker...', description 'Seorang pengemudi ojek online di daerah Sunter Jakarta Utara bernama Pak Aji harus berjuang di...', status 'SUCCESSFUL', and a 'DETAIL' link.
- Card 3:** Title 'Sedekah Santri Penghafal Al-Quran...', description 'Yuk Ayahanda Bunda sedekahkan sebagian hartanya untuk kebutuhan pendidikan dan pangan santri...', status 'SUCCESSFUL', and a 'DETAIL' link.

- Tampilan halaman *Project Detail* (Status *Ongoing*)

The screenshot shows the top navigation bar with 'Eth-Crowdfunding' on the left, and 'New Project', 'Project List', and a wallet address '0xb4831F5F23604a3C2066c777Af5ae0CfEeb1c752' on the right. The main content area features a project title 'DARURAT! Bantu Pengungsi Korban Banjir Masamba' and a fundraiser ID '0x8A37aF87975529BeE69943c838E6F5E1a8854556'. Below this, a progress bar shows 'Fund Raised : 0.29 / 3 Ether' and a deadline 'Until 20 Jul 2020 21:9:56'. A prominent blue 'DONATE' button is centered below the progress bar. Underneath, a 'Description' section contains text about a flood in Masamba, Sulawesi Selatan, mentioning 16 deaths and 200 families affected, and requesting aid for food, medicine, and sanitation.

This screenshot is identical to the previous one but includes a 'Donation' modal window. The modal is a white box with a title 'Donation' and a text input field labeled 'Amount'. Below the input field, it says 'In Ether Currency'. A blue 'DONATE \$' button is located at the bottom right of the modal. The background content is dimmed to show the modal is active.

- Tampilan halaman *Project Detail* (Status *Successful*)

Eth-Crowdfunding

[New Project](#)
[Project List](#)
0xb4831f5f23604a3c2066c777af5ae0cf5eb1c752

Sedekah Santri Penghafal Al-Quran dan Kitab Kuning

Fundraiser : 0x8A37aF879755298eE69943c838E6F5E1a8854556

Fund Raised : 0.15 / 0.1 Ether
Until 16 Jul 2020 23:25:48

SUCCESSFUL

Description

Yuk Ayahanda Bunda sedekahkan sebagian hartanya untuk kebutuhan pendidikan dan pangan santri Yayasan Pondok Pesantren kami ini. Sedikit banyak yang Ayahanda Bunda donasikan Insyaallah akan sangat bermanfaat bagi kami, Walaupun hanya 1 lembar kertas ilmu, 1 butir beras ataupun 1 rupiah saja. Dengan membantu santri penghafal Al-Quran, Hadits & Kitab Kuning semoga bisa menjadi pahala tidak terputus serta menjadi penolong kita di hari perhitungan.

- Tampilan halaman *Project Detail* (Status *Failed*)

Eth-Crowdfunding

[New Project](#)
[Project List](#)
0xb4831f5f23604a3c2066c777af5ae0cf5eb1c752

Selamatkan Nyawa Sesama! #BersamaLawanCorona

Fundraiser : 0x8A37aF879755298eE69943c838E6F5E1a8854556

Fund Raised : 0.11 / 0.5 Ether
Until 15 Jul 2020 22:53:52

FAILED

Description

Penyebaran virus corona di Indonesia terus meluas. Dampak virus ini sangat mengkhawatirkan: Ribuan orang positif dan dalam pengawasan, sementara ratusan lainnya meninggal dunia. Angka tersebut bukan statistik semata, melainkan menyangkut nyawa dan kehidupan banyak orang. Penyebaran corona berdampak pada banyak hal mulai dari kesehatan banyak orang, sampai kehidupan ekonomi masyarakat kecil yang menurun drastis.

LAMPIRAN 2

- Kode *smart contract*

```
1 pragma solidity ^0.5.0;
2
3 import "./SafeMath.sol";
4
5 contract Crowdfunding {
6     using SafeMath for uint256;
7
8     Project[] private projects;
9
10    event ProjectCreated(
11        address projectAddress,
12        address fundraiser,
13        string title,
14        string description,
15        uint256 deadline,
16        uint256 fundGoal
17    );
18
19    function createProject(
20        string calldata title,
21        string calldata description,
22        uint deadline,
23        uint fundGoal
24    ) external {
25        uint deadlineDate = now.add(deadline.mul(1 days));
26        Project _project = new Project(msg.sender, title, description, deadlineDate, fundGoal);
27        projects.push(_project);
28        emit ProjectCreated(address(_project), msg.sender, title, description, deadlineDate, fundGoal);
29    }
30
31    function getProjects() external view returns(Project[] memory) {
32        return projects;
33    }
34 }
35
36 contract Project {
37     using SafeMath for uint256;
38
39     // State data
40     enum State {
41         Ongoing,
42         Failed,
43         Successful
44     }
45
46     // Variables
47     address payable public fundraiser;
48     uint public fundGoal;
49     uint public completeAt;
50     uint256 public currentFund;
51     uint256 public fundRaised;
52     uint public deadline;
53     string public title;
54     string public description;
55     mapping (address => uint) public funders;
56
57     // Event project received the funds
58     event ProjectFunded(
59         address funder,
60         uint fundAmount,
61         uint currentFund
62     );
63
64     // Event fundraiser received the funds
65     event FundraiserPaid(
66         address fundraiser
67     );
68
69     // Modifier to check if the function caller is the project creator
70     modifier isFundraiser() {
71         require(msg.sender == fundraiser);
72         _;
73     }
74
75     constructor(
76         address payable projectFundraiser,
77         string memory projectTitle,
78         string memory projectDescription,
79         uint projectDeadline,
80         uint projectFundGoal
81     ) public {
82         fundraiser = projectFundraiser;
83         title = projectTitle;
84         description = projectDescription;
85         deadline = projectDeadline;
86         fundGoal = projectFundGoal;
```

```

87     currentFund = 0;
88     fundRaised = 0;
89 }
90
91 // Funding process function
92 function funding() external payable {
93     require(now < deadline);
94     require(msg.sender != fundraiser);
95     funders[msg.sender] = funders[msg.sender].add(msg.value);
96     currentFund = currentFund.add(msg.value);
97     fundRaised = currentFund;
98     emit ProjectFunded(msg.sender, msg.value, currentFund);
99     if (currentFund >= fundGoal) {
100         giveFund();
101         completeAt = now;
102     }
103 }
104
105 // Give funds to fundraiser
106 function giveFund() internal returns (bool) {
107     uint256 totalFund = currentFund;
108     currentFund = 0;
109
110     if (fundraiser.send(totalFund)) {
111         emit FundraiserPaid(fundraiser);
112         return true;
113     } else {
114         currentFund = totalFund;
115     }
116
117     return false;
118 }
119
120 // Retrieve funds to funders
121 function getRefund() public returns (bool) {
122     require(funders[msg.sender] > 0);
123
124     uint amountToRefund = funders[msg.sender];
125     funders[msg.sender] = 0;
126
127     if(!msg.sender.send(amountToRefund)) {
128         funders[msg.sender] = amountToRefund;
129         return false;
130     } else {
131         currentFund = currentFund.sub(amountToRefund);
132     }
133
134     return true;
135 }
136
137 // Get project details
138 function projectDetails() public view returns (
139     address payable projectFundraiser,
140     string memory projectTitle,
141     string memory projectDesc,
142     uint256 projectDeadline,
143     uint256 projectCurrentFund,
144     uint256 projectFundRaised,
145     uint256 projectFundGoal,
146     State currentState
147 ) {
148     projectFundraiser = fundraiser;
149     projectTitle = title;
150     projectDesc = description;
151     projectDeadline = deadline;
152     projectCurrentFund = currentFund;
153     projectFundRaised = fundRaised;
154     projectFundGoal = fundGoal;
155     if (fundRaised >= fundGoal) {
156         currentState = State.Successful;
157     } else {
158         if (now < deadline) {
159             currentState = State.Ongoing;
160         } else {
161             currentState = State.Failed;
162         }
163     }
164 }
165 }

```

LAMPIRAN 3

- Tabel hasil pengujian perhitungan biaya transaksi minimum (*transactionFee*) eksekusi pemrosesan pembentukan proyek

No.	<i>gasPrice</i> (Gwei)	<i>gasUsed</i>	<i>transactionFee</i> (Ether)	<i>transactionFee</i> (Rupiah)
1.	1	925408	0.000925408	3194.500282
2.	10	925408	0.00925408	31945.00282
3.	25	925408	0.0231352	79862.50704
4.	50	925408	0.0462704	159725.0141
5.	75	925408	0.0694056	239587.5211
6.	100	925408	0.0925408	319450.0282
7.	128	925408	0.118452224	408896.0361

LAMPIRAN 4

- Tabel hasil pengujian perhitungan biaya transaksi (*transactionFee*) eksekusi pemrosesan pemberian dana pada proyek untuk kondisi pemberian dana awal

No.	<i>gasPrice</i> (Gwei)	<i>gasUsed</i>	<i>transactionFee</i> (Ether)	<i>transactionFee</i> (Rupiah)
1.	1	89837	0.000089837	310.1165343
2.	10	89837	0.00089837	3101.165343
3.	25	89837	0.002245925	7752.913358
4.	50	89837	0.00449185	15505.82672
5.	75	89837	0.006737775	23258.74007
6.	100	89837	0.0089837	31011.65343
7.	128	89837	0.011499136	39694.91639

- Tabel hasil pengujian perhitungan biaya transaksi (*transactionFee*) eksekusi pemrosesan pemberian dana pada proyek untuk kondisi pemberian dana pertengahan

No.	<i>gasPrice</i> (Gwei)	<i>gasUsed</i>	<i>transactionFee</i> (Ether)	<i>transactionFee</i> (Rupiah)
1.	1	59837	0.000059837	206.556798
2.	10	59837	0.00059837	2065.56798
3.	25	59837	0.001495925	5163.919951
4.	50	59837	0.00299185	10327.8399
5.	75	59837	0.004487775	15491.75985
6.	100	59837	0.0059837	20655.6798

7.	128	59837	0.007659136	26439.27015
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- Tabel hasil pengujian perhitungan biaya transaksi (*transactionFee*) eksekusi pemrosesan pemberian dana pada proyek untuk kondisi pemberian dana akhir

No.	<i>gasPrice</i> (Gwei)	<i>gasUsed</i>	<i>transactionFee</i> (Ether)	<i>transactionFee</i> (Rupiah)
1.	1	76769	0.000076769	265.0059132
2.	10	76769	0.00076769	2650.059132
3.	25	76769	0.001919225	6625.14783
4.	50	76769	0.00383845	13250.29566
5.	75	76769	0.005757675	19875.44349
6.	100	76769	0.0076769	26500.59132
7.	128	76769	0.009826432	33920.75689

- Tabel perhitungan rata-rata biaya transaksi (*transactionFee*) eksekusi pemrosesan pemberian dana pada proyek

No.	<i>gasPrice</i> (Gwei)	<i>gasUsed</i>	<i>transactionFee</i> (Ether)	<i>transactionFee</i> (Rupiah)
1.	1	75481	0.000075481	260.5597485
2.	10	75481	0.00075481	2605.597485
3.	25	75481	0.001887025	6513.993713
4.	50	75481	0.00377405	13027.98743
5.	75	75481	0.005661075	19541.98114
6.	100	75481	0.0075481	26055.97485

7.	128	75481	0.009661568	33351.64781
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LAMPIRAN 5

- Tabel perbandingan biaya pemrosesan pembentukan proyek galang dana untuk beberapa kondisi total dana proyek antara sistem *crowdfunding* yang dibangun (kondisi *gasPrice* 10, 25, 33, 50, 75 dan 100 Gwei) dan sistem *crowdfunding* yang ada saat ini (Kickstarter, GoFundMe dan Kitabisa)

No	Total Dana Proyek (Rupiah)	Biaya Pemrosesan Pembentukan Proyek Galang Dana (Rupiah)								
		Sistem Crowdfunding yang Dibangun						Kickstart er (5% Total Dana)	GoFund Me (0% Total Dana)	Kitabisa (5% Total Dana)
		<i>gasPrice</i> 1 Gwei	<i>gasPrice</i> 25 Gwei	<i>gasPrice</i> 33 Gwei	<i>gasPrice</i> 50 Gwei	<i>gasPrice</i> 75 Gwei	<i>gasPrice</i> 100 Gwei			
1.	1000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	50000	0	50000
2.	2000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	100000	0	100000
3.	3000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	150000	0	150000

4.	4000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	200000	0	200000
5.	5000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	250000	0	250000
6.	6000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	300000	0	300000
7.	7000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	350000	0	350000
8.	8000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	400000	0	400000
9.	9000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	450000	0	450000
10.	10000000	3194.5002 82	79862.507 04	105418.50 93	159725.01 41	239587.52 11	319450.028 2	500000	0	500000

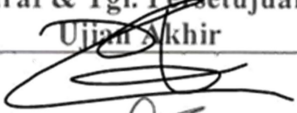

- Tabel perbandingan biaya pemrosesan pemberian dana pada proyek galang dana untuk beberapa kondisi dana yang diberikan antara sistem *crowdfunding* yang dibangun (kondisi *gasPrice* 10, 25, 33, 50, 75 dan 100 Gwei) dan sistem *crowdfunding* yang ada saat ini (Kickstarter, GoFundMe dan Kitabisa)

No	Dana yang Diberikan (Rupiah)	Biaya Pemrosesan Pemberian Dana pada Proyek Galang Dana (Rupiah)								
		Sistem Crowdfunding yang Dibangun						Kickstarter (3% Dana + 3000)	GoFundMe (2.9% Dana + 4500)	Kitabisa (1.5% Dana + 1650)
		<i>gasPrice</i> 1 Gwei	<i>gasPrice</i> 25 Gwei	<i>gasPrice</i> 33 Gwei	<i>gasPrice</i> 50 Gwei	<i>gasPrice</i> 75 Gwei	<i>gasPrice</i> 100 Gwei			
1.	1000	260.5597485	6513.993713	8598.471701	13027.98743	19541.98114	26055.97485	3030	4529	1665
2.	2500	260.5597485	6513.993713	8598.471701	13027.98743	19541.98114	26055.97485	3075	4572.5	1687.5
3.	5000	260.5597485	6513.993713	8598.471701	13027.98743	19541.98114	26055.97485	3150	4645	1725
4.	10000	260.5597485	6513.993713	8598.471701	13027.98743	19541.98114	26055.97485	3300	4790	1800






		85	13	01	43	14	5			
5.	25000	260.55974	6513.9937	8598.4717	13027.987	19541.981	26055.9748	3750	5225	2025
		85	13	01	43	14	5			
6.	50000	260.55974	6513.9937	8598.4717	13027.987	19541.981	26055.9748	4500	5950	2400
		85	13	01	43	14	5			
7.	100000	260.55974	6513.9937	8598.4717	13027.987	19541.981	26055.9748	6000	7400	3150
		85	13	01	43	14	5			
8.	250000	260.55974	6513.9937	8598.4717	13027.987	19541.981	26055.9748	10500	11750	5400
		85	13	01	43	14	5			
9.	500000	260.55974	6513.9937	8598.4717	13027.987	19541.981	26055.9748	18000	19000	9150
		85	13	01	43	14	5			
10.	1000000	260.55974	6513.9937	8598.4717	13027.987	19541.981	26055.9748	33000	33500	16650
		85	13	01	43	14	5			





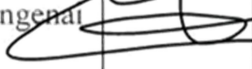
KARTU BIMBINGAN SKRIPSI
Departemen S1 Teknik Informatika Universitas Hasanuddin

Stambuk	Nama Mahasiswa
D42115304	Fiqar Aprialim

Pembimbing	Nama Pembimbing	Paraf & Tgl. Persetujuan Ujian Akhir
I	Adnan, S.T., M.T., Ph.D.	
II	Dr. Eng. Ady Wahyudi Paundu, S.T., M.T.	
No. SK Pembimbing :		

Judul Skripsi :	Penerapan <i>Blockchain</i> dengan Integrasi <i>Smart Contract</i> pada Sistem <i>Crowdfunding</i>
------------------------	--

No.	Tanggal Bimbingan	Uraian Kegiatan Bimbingan	Paraf
1	4 Maret 2020	Konsultasi dengan Pembimbing II terkait arsitektur sistem <i>crowdfunding</i> yang dibangun	
2	19 Juni 2020	Konsultasi dengan Pembimbing II terkait skema pengujian dan <i>progress</i> pengembangan sistem	
3	30 Juni 2020	Menunjukkan sistem <i>crowdfunding</i> yang dibangun kepada Pembimbing II	
4	28 Juli 2020	Konsultasi dengan Pembimbing II mengenai penulisan dan pengujian sistem	
5	3 Agustus 2020	Konsultasi dengan Pembimbing I mengenai perbaikan literatur dan pengujian sistem	
6	12 Agustus 2020	Konsultasi dengan Pembimbing II mengenai perbaikan penulisan dan pengujian sistem	
7	29 Agustus 2020	Konsultasi dengan Pembimbing II mengenai perbaikan penulisan	
8	8 September 2020	Konsultasi dengan Pembimbing I mengenai penulisan dan presentasi seminar hasil	

9	28 September 2020	Konsultasi dengan Pembimbing I terkait perbaikan skema pengujian sistem	
10	28 September 2020	Konsultasi dengan Pembimbing II terkait perbaikan skema pengujian sistem	
11	2 November 2020	Konsultasi dengan Pembimbing II mengenai perbaikan hasil pengujian sistem	
12	3 November 2020	Konsultasi dengan Pembimbing I mengenai <i>paper</i> (jurnal)	
13	16 November 2020	Konsultasi dengan Pembimbing I mengenai presentasi ujian skripsi	

LEMBAR PERBAIKAN SKRIPSI

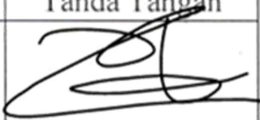



“PENERAPAN *BLOCKCHAIN* DENGAN INTEGRASI *SMART CONTRACT*
PADA SISTEM *CROWDFUNDING*”

OLEH:


FIQAR APRIALIM
D421 15 304

Skripsi ini telah dipertahankan pada Ujian Akhir Sarjana tanggal 2 Desember 2020.
Telah dilakukan perbaikan penulisan dan isi skripsi berdasarkan usulan dari penguji
dan pembimbing skripsi.

Persetujuan perbaikan oleh tim penguji:

	Nama	Tanda Tangan
Ketua	Adnan, S.T., M.T., Ph.D.	
Sekretaris	Dr.Eng. Ady Wahyudi Paundu, S.T., M.T.	
Anggota	Dr. Amil Ahmad Ilham, S.T., M.IT.	
	Iqra Aswad, S.T., M.T.	

Persetujuan perbaikan oleh pembimbing:

Pembimbing	Nama	Tanda Tangan
I	Adnan, S.T., M.T., Ph.D.	
II	Dr.Eng. Ady Wahyudi Paundu, S.T., M.T.	