

**TUGAS PROJECT 12: MENGHITUNG BIAYA DAN ESTIMASI PENGEMBANGAN
APLIKASI**

ANALISIS DAN PERANCANGAN PERANGKAT LUNAK

APLIKASI KLIKNCLEAN



KELOMPOK BYTE-BLAZER

DISUSUN OLEH :

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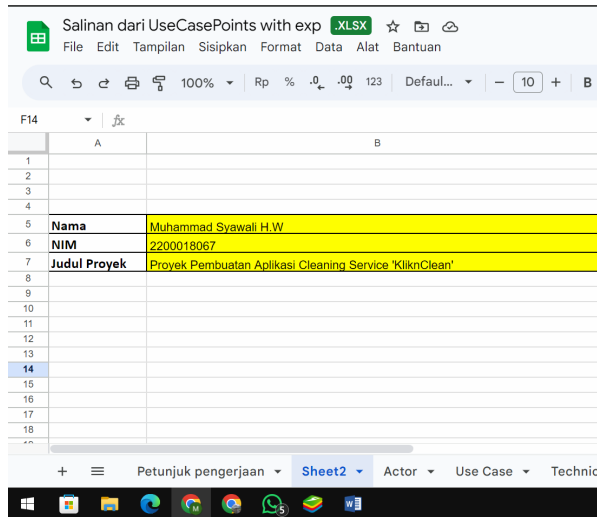
FAKULTAS TEKNOLOGI INDUSTRI

PROGRAM STUDI INFORMATIKA

UNIVERSITAS AHMAD DAHLAN

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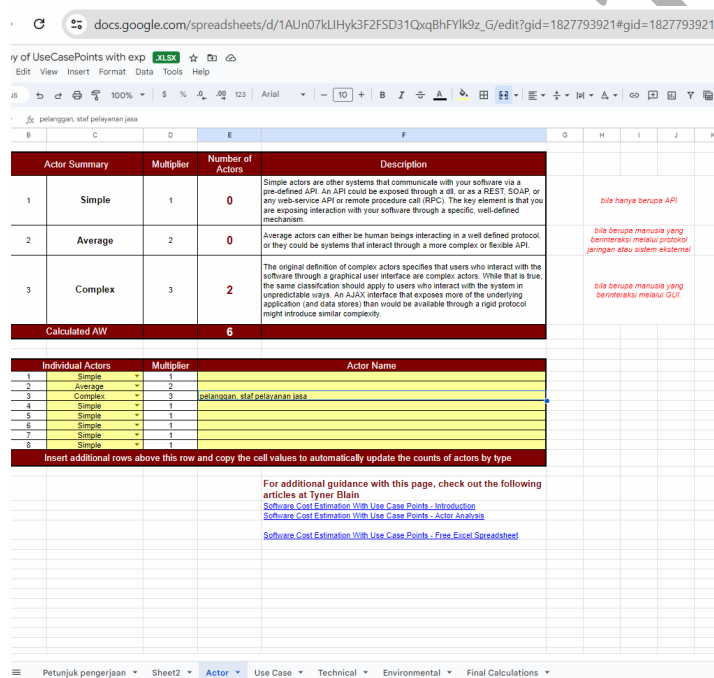
1. Sheet2



	A	B
1		
2		
3		
4		
5	Nama	Muhammad Syawali H.W
6	NIM	2200018067
7	Judul Proyek	Proyek Pembuatan Aplikasi Cleaning Service 'KliknClean'
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		

Sheet2 berisikan identitas, saya mengikuti proyek dan detail yang sama dengan proyek kelompok yang dikerjakan.

2. Actor



B	C	D	E	F	G	H	I	J	K
	Actor Summary	Multiplier	Number of Actors	Description					
1	Simple	1	0	Simple actors are other systems that communicate with your software via a pre-defined API. An API could be exposed through a REST, SOAP, or any web-service API or remote procedure call (RPC). The key element is that you are exposing interaction with your software through a specific, well-defined mechanism.	bila hanya berupa API				
2	Average	2	0	Average actors can either be human beings interacting in a well-defined protocol, or they could be systems that interact through a more complex or flexible API.	bila berupa manusia yang berinteraksi melalui protokol jaringan atau sistem eksternal				
3	Complex	3	2	The original definition of complex actors specifies that users who interact with the software through a graphical user interface are complex actors. While that is true, the same classification should apply to users who interact with the system in unpredictable ways. An AJAX interface that exposes more of the underlying application (and data stores) than would be available through a rigid protocol might introduce similar complexity.	bila berupa manusia yang berinteraksi melalui GUI				
	Calculated AW		6						
	Individual Actors	Multiplier		Actor Name					
1	Simple	1							
2	Average	2							
3	Complex	3		pelanggan, staf pelayanan jasa					
4	Simple	1							
5	Simple	1							
6	Simple	1							
7	Simple	1							
8	Simple	1							
	Insert additional rows above this row and copy the cell values to automatically update the counts of actors by type								
	For additional guidance with this page, check out the following articles at Tyner Dtain Software Cost Estimation With Use Case Points - Introduction Software Cost Estimation With Use Case Points - Actor Analysis Software Cost Estimation With Use Case Points - Free Excel Spreadsheet								

Nah pada bagian Actor ini terdapat 3 jenis actor, simple, average dan complex. Berdasarkan use case yang terdapat pada proyek kelompok maka ditentukan bahwa terdapat 2 aktor Complex (manusia berinteraksi dengan GUI), actor simple adalah system dan actor complex adalah pelanggan, staf pelayanan jasa (admin). Isikan number of actor complex menjadi 2 dan rincian actor name pada kolom kuning yang disediakan seperti pada gambar diatas. Didapatkan nilai AW 6.

4.

UseCasePoints with exp

C	D	E	F	G	H	I	J
Unadjusted Use Case Points	Multipier	Number of Use Cases	Description				
Simple	5	12	Simple Use Case - up to 3 transactions.				
Average	10	0	Average Use Case - 4 to 7 transactions.				
Complex	15	0	Complex Use Case - more than 7 transactions.				
Calculated UUCP		60					
Individual Use Cases	Multipier	Use Case Name					
Simple	= 5						
Average	= 10						
Complex	= 15						
Simple	= 5						
Simple	= 5						
Simple	= 5						
Simple	= 5						
Simple	= 5						
Insert additional rows above this row and copy the cell values to automatically update the counts of actors by type							
use case description							

For additional guidance with this page, check out the following articles at Tyner Blain

- [Software Cost Estimation With Use Case Points - Introduction](#)
- [Software Cost Estimation With Use Case Points - Use Case Analysis](#)
- [How to Write Good Use Case Names - 7 Tips](#)
- [Software Cost Estimation With Use Case Points - Free Excel Spreadsheet](#)

Pada bagian Use Case ini digunakan untuk perhitungan seberapa banyak interaksi transaksi yang terjadi. Use Case nya dibedakan menjadi 3 yaitu use case simple, use case average dan use case complex. Berdasarkan use case proyek kelompok maka ditentukan bahwa terdapat 12 use case simple dan dapat dilihat sesuai pada gambar. Jika diperhatikan tidak semua use case dimasukkan ke dalam perhitungan ini karena setelah meninjau usecase dan sequence diagram dipastikan bahwa terdapat 12 use case saja. Semua usecase ini termasuk dalam kategori simple karena jumlah transaksi yang terjadi tidak lebih dari 3 transaksi. Didapatkan nilai UUCP 60

4. Technical

Praktikum Pertemuan 10 - APPL | Home - Google Drive | Copy of UseCasePoints with exp

docs.google.com/spreadsheets/d/1hZCuEtrYkNjB075ooQUXTT9S7sYay/edit?gid=346781186#gid=346781186

Google recommends setting Chrome as default [Set as default](#)

Copy of UseCasePoints with exp .xlsx

File Edit View Insert Format Data Tools Help

Menus 100% 123 Arial 14

	A	B	C	D	E	F	G	H
1								
2			Technical Factor	Multiplier	Relative Magnitude (Enter 0-5)	Description		
3	1	Distributed System Required	2	1	The architecture of the solution may be centralized or single-tenant, or it may be distributed (like an n-tier solution) or multi-tenant. Higher numbers represent a more complex architecture.			
4	2	Response Time Is Important	1	2	The quickness of response for users is an important (and non-trivial) factor. For example, if the server load is expected to be very low, this may be a trivial factor. Higher numbers represent increasing importance of response time (a search engine would have a high number, a daily news aggregator would have a low number).			
5	3	End User Efficiency	1	3	Is the application being developed to optimize on user efficiency, or just capability? Higher numbers represent projects that rely more heavily on the application to improve user efficiency.			
6	4	Complex Internal Processing Required	1	1	Is there a lot of difficult algorithmic work to do and test? Complex algorithms (resource leveling, time-domain systems analysis, OLAP cubes) have higher numbers. Simple database queries would have low numbers.			
7	5	Reusable Code Must Be A Focus	1	2	Is heavy code reuse an objective or goal? Code reuse reduces the amount of effort required to deploy a project. It also reduces the amount of time required to debug a project. A shared library function can be re-used multiple times, and fixing the code in one place can resolve multiple bugs. The higher the level of re-use, the lower the number.			
8	6	Installation Ease	0.5	1	Is ease of installation for end users a key factor? The higher the level of competence of the users, the lower the number.			
9	7	Usability	0.5	2	Is ease of use a primary criteria for acceptance? The greater the importance of usability, the higher the number.			
10		Cross-Platform			Is multi-platform support required? The more platforms that have to be			

Petunjuk pengerjaan

Sheet2

Actor

Use Case

Technical

Environmental

Final Calculations

85°F Mostly cloudy

Praktikum Pertemuan 10 - APPL | Home - Google Drive | Copy of UseCasePoints with en

docs.google.com/spreadsheets/d/1hZCuEtrYkNjB075ooQUXTT9S7sYay/edit?gid=346781186#gid=346781186

Google recommends setting Chrome as default [Set as default](#)

Copy of UseCasePoints with exp .xlsx

File Edit View Insert Format Data Tools Help

Menus 100% 123 Arial 14

8	6	Installation Ease	0.5	1	Is ease of installation for end users a key factor? The higher the level of competence of the users, the lower the number.		
9	7	Usability	0.5	2	Is ease of use a primary criteria for acceptance? The greater the importance of usability, the higher the number.		
10	8	Cross-Platform Support	2	0	Is multi-platform support required? The more platforms that have to be supported (this could be browser versions, mobile devices, etc. or Windows/OS/Unix), the higher the value.		
11	9	Easy To Change	1	1	Does the customer require the ability to change or customize the application in the future? The more change / customization that is required in the future, the higher the value.		
12	10	Highly Concurrent	1	1	Will you have to address database locking and other concurrency issues? The more attention you have to spend to resolving conflicts in the data or application, the higher the value.		
13	11	Custom Security	1	1	Can existing security solutions be leveraged, or must custom code be developed? The more custom security work you have to do (field level, page level, or role based security, for example), the higher the value.		
14	12	Dependence On Third-Party Code	1	0	Will the application require the use of third party controls or libraries? Like re-usable code, third party code can reduce the effort required to deploy a solution. The more third party code (and the more reliable the third party code), the lower the number.		
15	13	User Training	1	1	How much user training is required? Is the application complex, or supporting complex activities? The longer it takes users to cross the suck threshold (achieve a level of mastery of the product), the higher the value.		
16		Calculated TCF		0.755			
17							
18					For additional guidance with this page, check out the following articles at Tyner Blain		
19					Software Cost Estimation With Use Case Points - Introduction		

Petunjuk pengerjaan Sheet2 Actor Use Case Technical Environmental Final Calculations

85°F Mostly cloudy

Technical ini merupakan kebutuhan khusus dari aplikasi yang dibuat. Terdapat 13 faktor dan juga range magnitude untuk setiap faktor bergantung pada tiap faktornya maka magnitude juga dapat disesuaikan namun untuk umumnya semakin tinggi nilai magnitude maka semakin tinggi pula nilai faktornya/ makin besar. Berikut rinciannya:

- Distributed system required, nilai magnitude 1 karena infrastruktur yang tidak kompleks
- Response time is important, nilai magnitude 2 karena respon waktu yang termasuk kurang cepat tetapi tidak terlalu lama.

- End User Efficiency, nilai magnitude 3 karena tidak terlalu membutuhkan pemahaman yang cepat bagi user dan saat ini banyak orang yang sudah familiar dengan teknologi yang digunakan sehingga dicapai Keputusan magnitude 3.
- Complex Internal Processing Required, nilai magnitude 1 karena algoritma yang digunakan tidak kompleks
- Reusable Code Must Be A Focus, nilai magnitude 2 karena source code jarang digunakan berulang kali dalam fitur
- Installation Ease, nilai magnitude 1 karena instalasi termasuk mudah untuk user pemula
- Usability, nilai magnitude 2 karena termasuk penting namun tidak menjadi sebuah keharusan
- Cross-Platform Support, nilai magnitude 0 karena tidak ada cross platform yang dibuat
- Easy To Change, nilai magnitude 1 karena kemungkinan perubahan di masa mendatang rendah
- Highly Concurrent, nilai magnitude 1 karena transaksi data termasuk rendah
- Custom Security, nilai magnitude 1 karena untuk proyek ini level keamanan tinggi belum diperlukan
- Dependence On Third-Party Code, nilai magnitude 0 karena memang tidak ada ketergantungan
- User Training, nilai magnitude 1 karena penggunaan aplikasi termasuk mudah untuk diterapkan oleh user

Dari sini didapatkan nilai TCF 0.755

5. Enviorenment

Copy of UseCasePoints with exp					
AT					
	Environmental Factor	Multipier	Relative Magnitude (Enter 0-5)	Description	
2					isi hanya di bagian kolom E yang akan diambil untuk komponen yang sebagai penilai nilai ya
3	1	Familiarity With The Project	1.5	2	How much experience does your team have working in this domain? The domain of the project will be a reflection of what the software is intended to accomplish, not the implementation language. In other words, for an insurance compensation system written in Java, you care about the team's experience in the insurance compensation space - not how much Java they've written. Higher levels of experience get a higher number.
4	2	Application Experience	0.5	1	How much experience does your team have with the application. This will only be relevant when making changes to an existing application. Higher numbers represent more experience. For a new application, everyone's experience will be 0.
5	3	OO Programming Experience	1	2	How much experience does your team have at OOP? It can be easy to forget that many people have no object oriented programming experience if you are used to having it. A user-centric or use-case-driven project will have an inherently OO structure in the implementation. Higher numbers represent more OO experience.
6	4	Lead Analyst Capability	0.5	2	How knowledgeable and capable is the person responsible for the requirements? Bad requirements are the number one killer of projects - the Standish Group reports that 40% to 60% of defects come from bad requirements. Higher numbers represent increased skill and knowledge.
7	5	Motivation	1	4	How motivated is your team? Higher numbers represent more motivation.
8	6	Stable Requirements	2	2	Changes in requirements can cause increases in work. The way to avoid this is by planning for change and instituting a timing system for managing those changes. Most people don't do this, and some teams will be unmanageable. Higher numbers represent more change (or a less effective system for managing change).
9	7	Part Time Staff	-1	0	Note, the multiplier for this number is negative. Higher numbers reflect team members that are part time, outside consultants, and developers who are splitting their time across projects. Context switching and other intangible factors make these team members less efficient.
10	8	Difficult Programming Language	-1	1	This multiplier is also negative. Harder languages represent higher numbers. We believe that difficulty is in the eye of the beholder (sorry). Java might be difficult for a fortran programmer. Think of it in terms of difficulty for your team, not abstract difficulty.
11		Calculated EF		0.995	

Nah untuk enviorenment ini lebih berarah pada tim masing masing yang mengerjakan proyek ini. Berdasarkan pengalaman pengerjaan proyek kelompok didapatkan dan diputuskan nilai

magnitude seperti pada gambar diatas. Terdapat 8 faktor dan range magnitude 0-5 seperti pada bagian technical sebelumnya. Berikut adalah rinciannya:

- Familiarity With The Project, nilai magnitude 2 karena pengalaman programmer belum terlalu banyak untuk proyek yang dikembangkan.
- Application Experience, nilai magnitude 1 karena pengalaman di bidang software yang dikembangkan masih termasuk baru.
- OO Programming Experience, nilai magnitude 2 karena pengalaman tim mengerjakan proyek OO belum terlalu banyak
- Lead Analyst Capability, nilai magnitude 2 karena lead belum memiliki cukup banyak pengalaman sehingga skill dan pengetahuan terbilang biasa saja dan belum expert atau ahli
- Motivation, nilai magnitude 4 karena motivasi tim tinggi dalam pengerjaan proyek
- Stable Requirements, nilai magnitude 2 karena tidak banyak perubahan yang diminta klien
- Part Time Staff, nilai magnitude 0 karena tidak ada staf part time yang direkrut
- Difficult Programming Language, nilai magnitude 1 karena tools yang digunakan umum untuk pengerjaan proyek serupa namun membutuhkan sedikit waktu dan pengalaman penggunaan tools baru.

Dari sini didapatkan nilai FF 0.995

6. Final Calculations

NOTE: UNTUK MENYAMAKAN SEMUA SLOT MAKA SEL E13 DI ISI 10			
Calculations From Other Tabs		Hours of Effort per Use Case Point References	
TCF	Technical Complexity Factor	0.755	
EF	Environmental Factor	0.995	
UUCP	Unadjusted Use Case Points	60	
AW	Actor Weighting	6	
Calculation of Use Case Points		Effort Rate	
UCP	Use Case Points	49.6	
Calculation of Estimated Effort			
Ratio	Hours of Effort per Use Case Point	10	
Hours of Effort		496 manhours	
Work time per day (hour)			
Estimate (days)		#DIV/0!	
Cost per UCP (Rupiah)			
Estimate (cost)		#DIV/0!	

For additional guidance with this page, check out the following articles at Tyner Blain

- [Software Cost Estimation With Use Case Points - Introduction](#)
- [Software Cost Estimation With Use Case Points - Final Calculations](#)
- [Software Cost Estimation With Use Case Points - Free Excel Spreadsheet](#)

Steps to Calculate Use Case Points

- For all tabs, enter values only in the highlighted cells
- Enter Technical Complexity Factors on the Technical tab
- Enter Environmental Factors on the Environmental tab
- Identify Use Cases on the Use Case tab
- Identify Actors on the Actor tab

Pada bagian final calculation ini berisi hasil akhir perhitungan yang dilakukan. Dapat dilihat pada gambar bahwa kalkulasi $TCF = 0.755$, $EF = 0.995$, $UUCP = 60$ dan $AW = 6$. Maka didapatkan nilai UCP nya adalah 49.6 dari rumus $UCP = UUCP * TCF * EF$ dan untuk kalkulasi effort per use case sesuai arahan NOTE maka diganti dengan 10 dan dihasilkan Hours of Effort sebesar 496 manhours.