

HOLY ANGEL UNIVERSITY

Appendix A Cover Letter



August 13, 2024

ALONA N. MIRANDA
Principal
San Pedro Elementary School

Dear Ms. Miranda:

Greetings of peace!

A contingent part of the requirements for the Bachelor of Science in Computer Science is 6CSTudy2 – Independent Study Course. Students enrolled in the course are required to create a research paper that will lead towards the development of their Undergraduate Thesis Project. Included in the course is the requirement to identify respondents for their study, including data gathering through surveys, interviews and collection of student's grades and attendance records. The objective of the course is to provide the students with the opportunity to create a research paper that could help in the area they have chosen for their field of study.

The following students have expressed their intention to consider your prestigious institution for their project proposal as respondents:

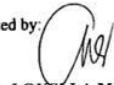
Baltazar, Gabriel Paolo I.
Reyes, Lee Randell C.

Sumang, Pauline Yvonn V.
Yap, Carl Gabriel S.

Through this letter, I would like to seek your approval for the above undertaking. Rest assured that the information that will be given to them will be for academic purposes only and will be treated with utmost confidentiality. Thank you very much.

Sincerely,


MS. CARISMA A. CARO
Adviser (6CSTudy2)

Noted by: 
MA. LOUELLA M. SALENGA
Chairperson
Computer Science Program


DR. MARLON I. TAYAG
Dean
School of Computing

HOLY ANGEL UNIVERSITY

Appendix B Interview Questions



HOLY ANGEL
UNIVERSITY

SCHOOL OF COMPUTING



INTERVIEW QUESTIONS:

Section 1: Classroom Environment (Section 1: *Kapaligiran ng Silid-Aralan*)

1. How comfortable do you believe the students feel in your classroom? (Gaano ka-komportable ang tingin mong nararamdaman ng mga estudyante sa iyong silid-aralan?)
 - Very Comfortable (*Sobrang Komportable*)
 - Comfortable (*Komportable*)
 - Neutral
 - Uncomfortable (*Hindi Komportable*)
 - Very Uncomfortable (*Sobrang Hindi Komportable*)
2. Do you think students have enough space to work comfortably at their desks? (Sa tingin mo, may sapat na espasyo ba ang mga estudyante para magtrabaho nang komportable sa kanilang mga desk?)
 - Always (*Palagi*)
 - Often (*Madalas*)
 - Sometimes (*Paminsan-minsan*)
 - Rarely (*Bihira*)
 - Never (*Hindi Kailanman*)
3. How often do you ensure the classroom is clean and well-organized? (Gaano kadalas mong tinitiyak na malinis at maayos ang silid-aralan?)
 - Always (*Palagi*)
 - Often (*Madalas*)
 - Sometimes (*Paminsan-minsan*)
 - Rarely (*Bihira*)
 - Never (*Hindi Kailanman*)

Section 2: Teaching Effectiveness (Section 2: *Bisa ng Pagtuturo*)

4. How effectively do you believe your teaching methods meet the diverse learning needs of your students? (Gaano kaepektibo sa tingin mo ang iyong mga pamamaraan ng pagtuturo sa pagtugon sa iba't ibang pangangailangan ng iyong mga estudyante?)
 - Very Effectively (*Sobrang Epektibo*)
 - Effectively (*Epektibo*)
 - Neutral
 - Ineffectively (*Hindi Epektibo*)
 - Very Ineffectively (*Sobrang Hindi Epektibo*)
5. How often do you use different teaching strategies (e.g., visual aids, group work) to engage students? (Gaano kadalas mong ginagamit ang iba't ibang estratehiya sa pagtuturo (halimbawa: visual aids, group work) upang maakit ang mga estudyante?)
 - Always (*Palagi*)
 - Often (*Madalas*)
 - Sometimes (*Paminsan-minsan*)
 - Rarely (*Bihira*)
 - Never (*Hindi Kailanman*)

6. How confident are you that your students understand the lessons? (Gaano ka-kumpiyansa ka na naiintindihan ng iyong mga estudyante ang mga aralin?)

- Very Confident (*Napaka-Kumpiyansa*)
- Confident (*Kumpiyansa*)
- Neutral
- Not Very Confident (*Hindi Masyadong Kumpiyansa*)
- Not Confident at All (*Walang Kumpiyansa*)

Section 3: Student Engagement (Section 3: *Partisipasyon ng Estudyante*)

7. How engaged do you believe students are in your classroom activities? (Gaano ka-engaged sa iyong tingin ang mga mag-aaral sa mga aktibidad sa silid-aralan?)

- Very Engaged (*Lubos na Aktibo*)
- Engaged (*Aktibo*)
- Neutral
- Disengaged (*Hindi Aktibo*)
- Very Disengaged (*Lubos na Hindi Aktibo*)

8. How frequently do students participate in class discussions and activities? (Gaano kadalas nakikilahok ang mga estudyante sa mga talakayan at aktibidad sa klase?)

- Always (*Palagi*)
- Often (*Madalas*)
- Sometimes (*Paminsan-minsan*)
- Rarely (*Bihira*)
- Never (*Hindi Kailanman*)

9. How often do students feel comfortable asking questions during class? (Gaano kadalas nararamdaman ng mga estudyante na komportable silang magtanong sa klase?)

- Always (*Palagi*)
- Often (*Madalas*)
- Sometimes (*Paminsan-minsan*)
- Rarely (*Bihira*)
- Never (*Hindi Kailanman*)

Section 4: Social-Emotional Support (Section 4: *Emosyonal na Suporta*)

10. How well do you believe students feel supported emotionally in your classroom? (Gaano mo pinaniniwalaang nararamdaman ng mga estudyante ang suporta sa kanilang emosyon sa iyong silid-aralan?)

- Very Well Supported (*Lubos na Sinusuportahan*)
- Well Supported (*Sinusuportahan*)
- Neutral
- Not Very Supported (*Hindi Masyadong Sinusuportahan*)
- Not Supported at All (*Walang Suporta*)



HOLY ANGEL UNIVERSITY



HOLY ANGEL
UNIVERSITY

SCHOOL OF COMPUTING



- 11. How often do students approach you with their problems or concerns? (Gaano kadalas lumalapit sa iyo ang mga estudyante na may mga problema o alalahain?)**
- Always (Palagi)
 - Often (Madalas)
 - Sometimes (Paminsan-minsan)
 - Rarely (Bihira)
 - Never (Hindi Kailanman)

- 12. Do you believe students feel a strong sense of belonging in your class? (Naniniwala ka ba na nararamdaman ng mga estudyante ang matinding pakikipagkapwa o pakikibagay sa iyong klase?)**
- Always (Palagi)
 - Often (Madalas)
 - Sometimes (Paminsan-minsan)
 - Rarely (Bihira)
 - Never (Hindi Kailanman)

Section 5: Access to Resources (Section 5: Pag-access sa Mga Mapagkukunan)

- 13. How often do your students have the necessary school supplies and resources? (Gaano kadalas may mga kinakailangang kagamitan at mapagkukunan ang iyong mga estudyante?)**
- Always (Palagi)
 - Often (Madalas)
 - Sometimes (Paminsan-minsan)
 - Rarely (Bihira)
 - Never (Hindi Kailanman)

- 14. How easily can students access additional learning tools (like textbooks or computers) if needed? (Gaano kadali maka-access ang mga estudyante ng mga karagdagang kagamitan sa pag-aaral (tulad ng mga aklat o computer) kung kinakailangan?)**
- Very Easily (Napakadal)
 - Easily (Madali)
 - Neutral
 - Not Easily (Hindi Madali)
 - Not at All (Hindi Madali Kailanman)

- 15. How often do you need to provide supplies or resources because students lack them? (Gaano kadalas kang kailangang magbigay ng mga gamit o kagamitan dahil wala ang mga ito sa mga estudyante?)**
- Never (Hindi Kailanman)
 - Rarely (Bihira)
 - Sometimes (Paminsan-minsan)
 - Often (Madalas)
 - Always (Palagi)

Section 6: Overall Satisfaction (Section 6: Pangkalahatang Kasiyahan)

- 16. Overall, how satisfied are you with the learning environment you've created? (Sa pangkalahanan, gaano ka nasisiyahan sa kapaligiran ng pag-aaral na iyong nilikha?)**

- Very Satisfied (Sobrang Nasisiyahan)
- Satisfied (Nasisiyahan)
- Neutral
- Unsatisfied (Hindi Nasisiyahan)
- Very Unsatisfied (Sobrang Hindi Nasisiyahan)

HOLY ANGEL UNIVERSITY

Appendix C Interview Transcript with Artificial Intelligence (AI) Professional

Name of Interviewee: Arian Yambao

Name of Interviewer 1: Gabriel Paolo I. Baltazar

Name of Interviewer 2: Carl Gabriel S. Yap

Location of Interview: Messenger Video Call

Date of Interview: July 30, 2024

[Start of Transcript]

Interviewer 2: Ok lang po ba if i-record ang interview and transcribe po namin?

Interviewee: Sure.

Interviewer 1: Hello, rinig po ba?

Interviewee: Hello, nawala ata ako.

Interviewer 1: Ay sorry sir naka mute pala po ako.

Interviewer 1: So gumamit po kami ng algo ng Random Forest Regression, so may questions lang po kami sa inyo, if ok lang po sa inyo.

Interviewee: Sure.

Interviewer 1: For the record, state your name.

Interviewee: Arian Yambao, director of AI. Experience is around 5 to 6 years.

Interviewer 1: Ok po so, yung question po namin sir is ano po yung pre-processing step na crucial na for preparing data for?

Interviewee: Ok so yung multi variants naman, I don't exactly see.

Interviewer 1: We have 5 columns, Attendance, Financial Situation.

Interviewee: How did you measure those columns?



HOLY ANGEL UNIVERSITY

Interviewer 1: Umm sa ngayon po sir cino-construct po namin yung mga questions po para ma measure yung mga factors.

Interviewee: I was really wondering how would you measure those, especially Financial Situations.

Interviewee: How many students will you get?

Interviewer 1: Around 80 – 100.

Interviewee: 100 is ok to start the thesis lower than that is not acceptable, If I read this title I'm making account all the students in the Philippines.

Interviewee: The problem might be the data itself, lower the case into one school or one city. Does the problem apply itself dito sa Pampanga?

Interviewer 1: Sa inyo po sir paano niyo po ma e-evaluate mga features sa pag predict po ng grades?

Interviewee: There is a metric on how to evaluate, in predicting. Accuracy is not always reliable, needs more specific and recoil, sabihin natin 90 out of 100 ilan don yung hinula lang niya or ilan doon yung ginawa talaga. Classification checks those.

Interviewer 1: So classification po no sir?

Interviewer 1: Yung output po kase Sir is yung grades po kase.

Interviewee: Pass or fail ba?

Interviewer 1: Meron po kaming, wait lang po sir.

Interviewer 1: Sir yung pong performance po kanita meron po kaming Outstanding, Very Satisfactory, Satisfactory, Fairly satisfactory, Did not meet expectations, meron din pong naka-kabit na remarks if pass or fail.



HOLY ANGEL UNIVERSITY

Interviewee: Pili ka lang kung gusto mo yung binary or multiclass classification, if gusto niyong mas challenging piliin mo yung multiclass, where 4 are positive and did not meet is yung negative, if mas madali naman yung pass or fail lang.

Interviewer 1: How do you interpret and improve the model performance if the initial results are not satisfactory?

Interviewee: Hyperparameter tuning.

Interviewer 1: So yung hyperparameter tuning sir iyon po ba yung parang train ng model po diba iyon po ba iyon?

Interviewee: Yes basically if you are not adept to Random Forest, if I remember correctly you have like number of trees or number of estimation you also have max depth, sample splits, the best thing to do is to research what type of hyperparameter for specific set of data. It's gonna make Decisions Tree so if you are familiar with familiar trees parang pababa siya. If maliit lang dataset nyo it might be better to use less than 200 it looks like decision trees. And also if gusto niyo industry if failed siya ang sasabihin namin talaga is to try it on another model, but it's not possible sa thesis kasi passed na ata ito so since wala ka namang magagawa you cannot switch models anymore. Put this in mind the final output of thesis doesn't have the model perfect, pwede nga mag fail si model as long as you produce a research kasi that's the whole purpose of research, but in the case of the model of your thesis, is failing yung performance you can then conclude that the findings of this research or thesis is failed yung model na to so we recommend not using it. Do that when it is not existent yet, you might fail kapag sinabi nyong fail siya pero may nagsabi ng iba na research study cases na nag fail siya kasi it meant that you did not do sufficient research when you reference with other work that means you did not read the recent papers kase nangyari na iyon before wherein so the used this model and the said na it's parang pangit yung model nato or wag gamitin itong model na to but they did not know it was already written 5 years ago so they failed their thesis pero yun lang in case kase baka mamaya kabahan kayo hala hala di siya gumagana or pangit nitong model kapag discuss then that's a good research kasi you've proven na it failed. But you have to make sure that you tried it with different and you tried it with the hope of success.



HOLY ANGEL UNIVERSITY

Interviewer 1: Last question nalang po sir. Paano po mag deploy ng machine learning program model gamit po yung web? May mga suggestion po ba kayo paano po mag deploy?

Interviewee: Marami, pero do you have the PC specs ba, does it have GPU, pero if Random Forest pwede naman sa CPU.

Interviewee: Ok if that's the case, try niyo yung TryRender sign up lang kayo don Render.com and or mas madali just run a StreamLit app, it's just free may GUI narin iyon aralin niyo nalang you can run your model there, it's just gonna be a background process just connect your GitHub its gonna run there free, you no longer need to run a Hiroku or whatever, pero if you want a hard route then of course make a Fast API and then deploy that then make your GUI. Ayun, so if you use your StreamLit, click niyo lang yung deploy co-connect niyo lang yung GitHub. Pero if gusto niyo na mag practice deployment talaga then. Oh nawala siya, ok si Carl nalang naririnig pa ba niya ako.

Interviewer 2: Opo sir opo, opo naririnig po.

Interviewee: Ok so I will just continue with you, but if you use StreamLit di niyo na need mag deploy ng render. But if gusto niyo ng render free rin naman iyon pero you need to separate it.

Interviewer 2: Sige po sir, yung pong render and StreamLit ano po mga iyon?

Interviewee: So si StreamLit is more of a framework, pinadaling framework so pwede na iyon para sa thesis, si render naman it can actually be use in the industry, si render kase super hybrid siya na free na deploy you can make your server there for free may CIDT integrations narin sila so good siya, so any changes you do on your github repository kunyare may update kayo just do GitPush and you no have to redeploy it it will already redeploy on it's own.

Interviewer 2: Sige po sir, i-research po naming dalawa.

Interviewee: Yeah go study it kasi it will also be used in the industry kaya try it.

Interviewer 1: Ok po sir nawala lang po ako kanina pero naka record naman po



HOLY ANGEL UNIVERSITY

Interviewee: Ok, anything else?

Interviewer 1: Sa ngayon po sir iyon muna po sir thank you po.

[End of Transcript]



HOLY ANGEL UNIVERSITY

Appendix D Interview Transcripts with Website Development Professional

Name of Interviewee: Joshua Edwin B. Dela Rosa

Name of Interviewer 1: Gabriel Paolo I. Baltazar

Name of Interviewer 2: Carl Gabriel S. Yap

1st Interview

Location of Interview: Messenger Video Call

Date of Interview: July 30, 2024

[Start of Transcript]

Interviewer 2: Hello po sir pwede po bang record and transcribe?

Interviewee: Sure.

Interviewer 1: For the record po sir, ask ko lang po full name niyo po?

Interviewee: Joshua Edwin B. Dela Rosa.

Interviewer 1: Current field of position po in Web Development?

Interviewee: Current Office manager but have been a project manager for almost slide on to development for 8 years.

Interviewer 1: How many years of experience po?

Interviewee: I've been in the company ever since, so around 9 years.

Interviewer 1: Ok po nice.

Interviewer 1: Mag a-ask lang po kami about sa thesis po naming about po sa aming web app.

Interviewee: Sure



HOLY ANGEL UNIVERSITY

Interviewer 1: Yung web po naming ay nag predict po ng grades gamit po ang Random Forest and gusto lang po naming makarinig ng suggestion po and.....

Interviewee: Can you repeat the main topic of your research?

Interviewer 1: Prediction of grades po and academic performance po so gumamit po kami ng Random Forest sir share ko po iyong nagawa kong web app which hindi pa po final.

Interviewee: Ok.

Interviewer 1: Kita po ba sir?

Interviewee: Yes.

Interviewer 1: First question sir pano po namin ma-improve yung overall user experience para po sa web app namin.

Interviewee: Is this the only screen or meron paba?

Interviewer 1: Ito lang po sir.

Interviewee: Ok.

Interviewee: Bali ang use case nito is to input details on the left side and then malalagay yung prediction sa right side this is a single use entity where every time na kailangan nila input for every student they need to place it individually. Can you input some details? Let's say that is student A. Then click mo yung predict. Wala naba yan in terms of hindi mo na ba gagamitin yung data na currently inputted?

Interviewer 1: Gagamitin po sir.

Interviewee: Pero currently walang sort of database kung saan masasave yung grades right?

Interviewer 1: Wala pa po sir, kung baga parang testing palang po sir.

Interviewee: Pero magiging part din iyon no?



HOLY ANGEL UNIVERSITY

Interviewee: Kasi sa visual part, more likely iyon yung requirement para makita mo dapat yung per student ba or para connected yung values, kase currently parang online calculator yung dating.

Interviewer 1: Opo opo ok po.

Interviewer 1: May experience po ba kayo sir when developing a machine learning web app po sir ganun po?

Interviewee: Uhh let me think, I don't think it's use for most business na nagpapagawa ng website, so usually ginagawa naming ay scope ng kailangan. So for example meron silang product calculator or kung ano man yung need nila regarding commerce. Kung may use man ang machine learning it's mostly for SEO stuff and how to better yung website para maging siyang top ng search results, so I don't think it applies on my end.

Interviewer 1: Ok po sir.

Interviewer 1: Kapag po sa mga ano sir ano po suggestion niyo po sa hosting services or platform na suitable po dito?

Interviewee: Hosting services pag ganon yung kailangan niyong I check is yung locale, sino ba gagamit as much as possible yung hosting platform na gagamiting niyo dapat kung saan malapit yung gagamit, if doon located mas mabilis yung input niya and output or kapag mag geget for API lets say API data, overall speed. Usually iyon yung kailangan niyong i-check usually sa paid platforms ikaw mamimili kung saan data server mo ilalagay. Ano pa kasi yung isa?

Interviewer 1: or Platforms po kasi what are some hosting services?

Interviewee: Platforms you mean what CMS or backend gagamitin mo, for simple things like this one I guess kahit minimal lang WORDPRESS would do pwede naman customize for what is needed, if gusto niyo rin ng combinations of platform and hosting VPN generator wordpress engine which also provides great speed mura lang ang cost. Since custom ang code niyo, it doesn't really matter yung platform service it only depends when you need to input a lot of



HOLY ANGEL UNIVERSITY

information on the backend, let's say na editable yung fields na ito tas kailangan mong gumawa ng 10 pages of this one wherein you need to edit each page or each title, kailangan i-translate into multiple languages, I think that's only where it's going to make sense otherwise where it's like an online pero thing wherein you input lahat walang masyadong backend input lahat iyong generated na not much need for complicated services or complicated solutions.

Interviewer 1: When it comes po ba sa pag dedelete ng ganitong web app ano po ba yung principles niyo po para mas or may ma-rerecomend po ba kayong techniques or tools?

Interviewee: On my end it is crucial when it comes to deployment is testing, bago siya mapunta sa let's say you when you are going to put it live, you need to make sure na nagkaroon kayo a way of testing like naka iterations ba kayo or naka waterfall or kung ano man ginamit niyong method, you need to make sure na yung scope ng software needs to run, iyong yung pinaka-una niyong kailangan gawin scoping is important because it makes the box of what you need to do. So let's say itong app na to para san ba siya is it just for browser or pati mobile dapat accessible? If ever man accessible sa mobile which versions IOS lang ba siya or fit din sa Android? If fit siya sa android, which versions? Tapos I che-check niyo rin considered din ba ang tablet size or may iba pang specific sizes na isusuport? So things like those they get very intricate as you go along na dapat kailangan naka check lahat atleast if sinabi ninyo na browser lang ito tapos dapat full screen that blocks everything up para hindi na kayo mapupunan o bakit hindi gumagana sa mobile kase sinabi naming desktop lang does that make sense.

Interviewer 1: Opo sir, so parang kapag pagdating po doon dapat na aadjust po yung gumagamit.

Interviewee: Kung saan gagamitin so for example, wala kayong ini scope na area if for desktop lang siya or for mobile kase baka I check nila ito for mobile tas hindi siya responsive edi extra fixes sa end niyo.

Interviewer 1: Ok po sir.



HOLY ANGEL UNIVERSITY

Interviewer 1: When it comes to design sir kailangan po ba sir ok lang po ba yung simple lang po ba?

Interviewee: Yup, simple lang I think it just needs to serve its purpose when it regards to this one. Parang nasa online calculator look pa kasi kaya ang laki ng title niya diba. Pero I think you need a proper UI once you start let's say may kailangan na siyang part na you can save student info, pero I don't think it makes sense to have the title so big, so need niyo na magkaroon na ng menu or some sort of way para atleast lets say magkakaroon ba ng login per teacher, let's say a teacher is going to use this can they create a login wherein lahat ng students nila they can keep track of what's happening or is it a one time session.

Interviewer 1: Yung balak po naming sir is one time session lang po, pero ano po mas prefer ninyo if nasa case niyo po kame?

Interviewee: If I am in your hands, of course I would reach for what is available pero I think yung pinaka best use case nito is yung masasave yung info nila that way may database sila or history of what's happening kaso that's going to be a lot of work, so if gagawin man siyang online calculator I think you need to ay one time session only then dapat informative rin siya I guess so what you could do is to keep it this way and then add some documentation below, of how it's calculated and some notes or inputs that might help paano napredict yung grades based of what I've input. Parang nakapag try naba kayo ng online calculators like tax calculator or SSS online?

Interviewer 1: Opo sir.

Interviewee: Diba mapapansin niyo yung mga websites na yon usually they try to teach you how to use it at the same time kasi nga one time use lang siya or one session use, as a user, they need to know how to use it, tsaka what's it use for in one page hindi siya yung tool that a teacher uses everytime need niya mag log in para ma save yung info parang ganon.

Interviewer 1: Ok po sir, sa ngayon po sir yun lang po mga questions po namin and kapag meron pa po kaming further questions po sir mag chat nalang po kami.



HOLY ANGEL UNIVERSITY

Interviewee: Yep, sure mag ping nalang kayo sa messenger.

Interviewer 1: Thank you po sir.

Interviewer 2: Thank you po sir.

Interviewee: Yeah thank you.

[End of Transcript]



HOLY ANGEL UNIVERSITY

2nd Interview

Location of Interview: Google Meet

Date of Interview: September 22, 2024

[Start of Transcript]

Interviewer 1: Sir rinig po ba?

Interviewee: Yes rinig.

Interviewer 1: Doon po kami may problem sir, doon po sa may pag predict so sa tingin ko po sir kaya po siya ganon dahil po sa model namin, kasi po tinatry po naming mag work doon po sa nakuha po naming data which is 154 lang po.

Interviewee: Hindi ba magiging issue iyon mismo if panel na magtatanong sa inyo kasi main topic ng thesis niyo is predictive study and if may problema sa prediction results you guys are going to get grilled. Kailangan niyo siguro kasi kahit 150 lang yung data actually that's simpler ideal is you play around and start with 0 then go with 5, gaya noong sabi ko before first thing na kailangan is to add tool tips or kahit guide man lang kasi currently nakakalito yung app sa first view, tapos if I could request palitan niyo yung color ng accordion kasi they are all blue and yung dating is parang parepareho sila or they all drop into a single drop of table whereas yung input or yung initial or kung yun yung current data, tapos yung sa ilalim change it into green or something else lalo na yung predicted grade. In regards naman to the actual info since i-cocontest nila yung prediction for sure that's 100% na yung magagawa niyo is to cover the extremes muna since predictive ito you have to know when it is going to predict when something happen. For example, let's say a student 80 yung grade niya binaba niyo lahat yung stats niya syempre kahit walang predictive app, ikaw ako masasagot natin yan magfafail siya masasagot natin yun. Magfafail siya yun yung magiging prediction hindi na kailangan I predict yon. Pero currently dahil I think there is something wrong with how it is being evaluated parang expect niya is passado parin siya kaya feel ko its mostly relying on GPA so parang nag minus lang siya ng certain numbers para hindi malayo yung predictive grade niya sa previous grade. So I think it would be a good thing to make sure if someone places in



HOLY ANGEL UNIVERSITY

extremes kasi sa business kapag meron ganyan you always test the extremes to make sure it doesn't break iyon yung quality assurance or quality control and I think iyon yung pinaka kailangan niyo dito. Check niyo muna sa extremes what happens if high grading student bigla siyang binagsak ng sobra bumaba yung financial pumanig learning environment nya tapos hindi siya pumasok weird din kasi na hindi ako makapag input ng 0, I think it's showing as wala akong nilagay whereas that is technically possible diba for someone to enroll then never showup then yung weird din kahit di na siya pumasok dapat heavily reliant din siya doon sa attendance which is currently hindi nag shoshowup, so I think yun yung pinaka minimum na step at least for now to improve yung app kahit confusing yung inbetween kailangan niyong ma-cover yung extremes kasi kahit anong grade mo nung umpisa if bababa lahat ng stats mo you don't need a predictive app to say na you are gonna fail, everyone is going to assume that already since it is a predictive app, I think it's going to play around doon nga sa middle ground yun yung papakita sa inbetween, let's say this guy has great financial situation kaso pangit yung learning environment nya, does it affect it, currently wala akong makitang ganon numbers dito mostly the same yung numbers na lumalabas.

Interviewer 1: Opo sir, soo.

Interviewee: Iyon yung sinasabi kong need niyong ground and ceiling yun yung mga extremes para kapag tinanong kayo ng panel ninyo masasabi niyo na ito yung 0 what happens and 100 what happens meron na kayong start and finish tapos pwede kayo mag plot ng info inbetween since predictive ito unlimited naman yung pag submit ng info try niyong I plot yung lahat ng data makukuha niyo per situation from 0 to 100 para makita niyo yung range of what happens duon sa input kahit bawasan niyo muna non yung mga values niyo para atleast makita niyo lang kung ano yung nagiging main factor or ano dapat yung main factor.

Interviewer 1: Ok po sir. So yung sa web app naman po sir, yung mga kailangan ko lang po palitan is palitan ko po yung kulay.

Interviewee: Oo para hindi sila parapareho para clear na itong part na ito is yung student and predicted tapos yung first is yung input tas mas I showcase yung predicted grade kasi parang nangyari is bonus lang siya sa dulo. Tapos kahit konting guide lang kahit paalam niyo lang na



HOLY ANGEL UNIVERSITY

yung 1 is yung lowest or something kasi by first look you'd know kung ano yung nangyayari. Kasi, kagaya duon sa attendance, kahit hindi ko kayo tanungin kaya kong i-input ng sarili ko yung values, kasi alam ko na yung isang column ay pang school days yung kabila is yung present whereas duon sa financial situation, for example radio slider lang siya or slider lang siya pero walang kahit anong input in between lalo na mahirap I explain ano difference ng 1.34 sa 1.35 saan niyo galing yung number na iyon, so change this into a drop down na may cinocover na range, otherwise you might need to defend sa panelist san galing yung value what makes a student 3.29 financial situation for example, also the same for the learning environment. Wag niyo rin pahirapan masyado sarili, kase baka kapag naka mood mga panelist niyo mahihirapan kayong sumagot.

Interviewer 1: Ok po sir, yung ano po kasi namin talaga sir is yung model po namin nung implement na po namin sa web app tapos ginamit na po yung trained model, yung nakikita po namin kapag nagpredict na po kami halos 80 to 85 lang po.

Interviewee: Gawin niyo sa ganon try niyong kumausap ng teachers with existing data input niyo yung same data ng previous year doon sa current year, kasi both are available and then if yung predictor niyo is almost same doon sa ino-output duon sa existing data duon sa teacher is close at least meron na kayong parang ok its very close kasi ngayon wala kayong basis pati mga numbers na lumalabas they don't make too much sense.

Interviewer 1: Ok po sir so yung kailangan ko muna pong ayusin ngayon sir is yung pag predict po talaga.

Interviewee: Yeah kase iyon yung title thesis niyo, sigurado yung panelist niyo doon sila mag fo-focus. You need to be able to defend kung ano man yung itanong nila na possible scenario or question and kailangan dapat meron kayong pagsagot. I get it it's a predictive study or a predictive app, but since it's a predictive app then you need to explain why it behaved this way. So kunware duon sa sample ko, let's say nag thesis defense kayo and Ok paano itong student na ito, 90 yung grade niya last time kaso never na siyang pumasok, yung financial niya bumaba and learning environment niya bumaba, mahirap I explain na and hindi niyo pwede sabihin sa panelist na mahirap talaga siyang I explain, sa middle ground they won't accept that you will



HOLY ANGEL UNIVERSITY

need something concrete that is possibly based on facts, meron kayong mahuhugutan na reference similar to your documents, diba kumukha kayo ng reference para I prove yung pointing thesis niyo. Similar lang yan sa presentation niyo kailangan meron kayong explanation with regards to whatever is showing up in regards to the app.

Interviewer 1: So ngayon po sir try po naming ayusin po.

Interviewee: So let's say gagamitin na talaga yung app, yung use case niya is matutulungan niya yung student na mag iba yung path based doon sa nakalagay dito. I think iyon yung kailangan niyong malagay na scenario, kasi yung student lets say 90 yung grade niya out of 150 days, 1 day lang siya pumasok tapos bumaba lahat ng stats niya tapos satisfactory pareng yung grade niya, then I think something is wrong.

Interviewer 1: Ok po sir, thank you po sa time niyo sir and advice niyo po.

Interviewee: Advice ko pa sa inyo is paliitin yung scope niyo without ruining the title of your thesis, kase kapag lumiit masyado scope niyo papapalit title niyo or di-disqualify kayo kasi malayo na yung goal niyo sa title niyo. Yeah parang ganon.

Interviewer 1: Ok po sir salamat po.

Interviewer 2: Thank you po sa advice sir.

[End of Transcript]



HOLY ANGEL UNIVERSITY

Appendix E Interview Transcript on Factors affecting Academic Performance

Name of Interviewee: Reachie Calalang

Name of Interviewer: Carl Gabriel S. Yap

Location of Interview: San Pedro Elementary School (SPES)

[Start of Transcript]

Interviewer: Hi maam, pwede kobang irecord para po ma transcript? Tagalog nalang po mode of language natin.

Interviewee: Ok sige.

Interviewee: Chineck ko yung mga rrl mo and nakita ko yung mga sinasabi mong factors kung bakit may chance na mag underperform ang student, sa public school mas maganda tignan mo ang learning environment o kung paano ka komportable ang estudyante sa school. Dahil public school kami, alam naman namin ang mga estudyante na isa lang cellphone para gamitin sa pagaaral tapos wala pa silang internet kaya mag papa load pa sila, may mga effects din kasi iyon. Meron nga tatlo silang magkakapatid grade 3, grade 2, grade 1 sila tapos hindi man sila binibigyan ng baon ng parents nila kaya kapag nasa room na sila nanahimik sila pero as a teacher kung makikita mo naman yon hindi mo kakayanin na hindi sila bigyan ng pagkain. Maganda rin sana sa factors niyo dahil meron kaming feeding program mga nutrition levels nila pero parang hindi niyo na scope yon dahil graduating or grade 6 students nalang kayo.

Interviewer: Opo maam, meron din po kaming health and mental factors na nakuha sa rrl na pwede maging factor.

Interviewee: Ang health, physical and mental hindi mo naman makukuha sa mga elementary students, ang mga factors nayan nag affect naman lahat ng tao pero mahirap siyang i-measure and mahirap din i-prove na ganon nga ang health niya kaya kase di ako sure sa research niyo kung kailangan niyo talaga iyon. Meron pa palang factor na nakita ko sa research niyo kaso



HOLY ANGEL UNIVERSITY

mostly college students yung topic yung ngang financial factor. Dito sa DepEd, merong survey na ginagawa yung DepEd na tinatanong yung income ng parents nila.

Interviewer: Pwede po ba naming makita yung survey maam.

Interviewee: Kaso dahil DepEd research iyon, results lang pwede makita kasi hindi siya kamukha ng mga grades na kami yung gumagawa kaya kahit DepEd files sila dahil kami nag fill-up pwede naming i-share.

Interviewer: Ay kamalasan naman pala.

Interviewee: Ganyan talaga tsaka wala na yung mga paper na iyon kasi agad pinapass yon. Pero yung survey nila tungkol doon tinanong yung income tsaka parang overall satisfaction kung stable yaba o ali. Tagalugan munemu keng transcript.

Interviewer: Syempre maam.

Interviewee: So para matapos na, ang magandang kunin niyong data dito sa school na may informed consent ay yung learning environment pati financial. Yung grades and attendance dalhin mo nalang laptop mo para mabilis pero sesend ko rin files para may proof ka basta alam mo na kung paano i-confidential iyon.

Interviewer: Sige ma'am thank you, send ko nalang thesis after ma approve na lahat-lahat.

Interviewee: Oh sige galingan mu.

[End of Transcript]



HOLY ANGEL UNIVERSITY

Appendix F Survey Questionnaire



HOLY ANGEL
UNIVERSITY

SCHOOL OF COMPUTING



SURVEY QUESTIONNAIRE (MGA TALATANUNGAN NG SARBEY)

Instructions: Please answer the following questions by checking the circle that corresponds to your response.

Mga tagubilin: Paki-sagutan ang mga sumusunod na tanong sa pamamagitan ng pag-tsek sa bilog na tumutugon sa iyong sagot.

**Budgeting and Planning (Pagba-budget at Pagpaplano):
How do you currently manage budgeting for your family's needs, including educational expenses?**

(Paano mo kasalukuyang pinamamahalaan ang pagba-budget para sa mga pangangailangan ng iyong pamilya, kabilang ang mga gastusin sa edukasyon?)

5, Strongly Agree (Lubos na sang-ayon):

I have a detailed budget and follow it closely. (Mayroon akong detalyadong badyet at sinusunod ko ito nang mahigpit)

4, Agree (Sang-ayon):

I have a rough budget but it's flexible. (Mayroon akong budget pero hindi ito nasusunod)

3, Neutral:

I manage expenses as they come without a formal budget. (Gumagastos ako na hindi alintala ang budget)

2, Disagree (Hindi sang-ayon):

I have no formal budget. (Wala akong pormal na budget)

1, Strongly Disagree (Lubos na hindi sang-ayon):

I prefer not to say. (Mas pinipili kong hindi sabihin)

Income Information (Impormasyon Tungkol sa Kita):

What is your approximate monthly household income? (Ano ang iyong tinatayang buwanang kita ng sambahayan?)

5: PHP 80,001 or more (PHP 80,001 o higit pa)

4: PHP 60,001 - PHP 80,000 (PHP 60,001 hanggang PHP 80,000)

3: PHP 40,001 - PHP 60,000 (PHP 40,001 hanggang PHP 60,000)

2: PHP 20,000 - PHP 40,000 (PHP 20,000 hanggang PHP 40,000)

1: Less than PHP 20,000 (Mas mababa sa PHP 20,000)

Work and Income (Trabaho at Kita):

Do you feel that your current employment situation meets your family's financial needs? (Nararamdaman mo bang natutugunan ng kasalukuyang kalagayan mo sa trabaho ang mga pinansiya na pangangailangan ng iyong pamilya?)

5, Strongly Agree (Lubos na sang-ayon): I feel my employment fully meets my family's needs. (Lubos na Sumasang-ayon: Pakiramdam ko ay lubos na natutugunan ng aking trabaho ang pangangailangan ng aking pamilya)

4, Agree (Sang-ayon): I feel my employment somewhat meets my family's needs. (Sumasang-ayon: Pakiramdam ko ay bahagyang natutugunan ng aking trabaho ang pangangailangan ng aking pamilya)

3, Neutral: I feel indifferent about whether my employment meets my family's needs. (Neutral: Walang pakialam o walang nararamdaman kung natutugunan ng aking trabaho ang pangangailangan ng aking pamilya.)

2, Disagree: I feel my employment somewhat does not meet my family's needs. (Hindi Sumasang-ayon: Pakiramdam ko ay hindi gaanong natutugunan ng aking trabaho ang pangangailangan ng aking pamilya.)

1, Strongly Disagree: I do not feel my employment meets my family's needs at all. (Lubos na Hindi Sumasang-ayon: Pakiramdam ko ay hindi natutugunan ng aking trabaho ang pangangailangan ng aking pamilya kahit kaunti)

General Financial Situation: (Pangkalahatang Kalagayang Pinansiya)

How would you describe your current financial situation? (Paano mo ilalarawan ang kasalukuyang kalagayan mo sa pinansiya?)

5, Very Stable (Sobrang Maayos)

4, Stable, with minor concerns (Maayos, ngunit may malit na mga alalahanin)

3, Stable, with concerns (Maayos, ngunit may mga alalahanin)

2, Somewhat unstable, with frequent concerns (Medyo hindi maayos, may madalas na mga alalahanin)

1, Unstable (Hindi maayos)



HOLY ANGEL UNIVERSITY

Appendix G Informed Consent



HOLY ANGEL
UNIVERSITY

SCHOOL OF COMPUTING



INFORMED CONSENT (PAHINTULOT NA MAY KAALAMAN)

Research Title: Prediction of Academic Performance Level of Graduating Elementary Students

Pamagat ng Pananaliksik: Paghuhula sa Antas ng Pang-akademikong Pagganap ng Mga Mag-aaral sa Elementarya na Magtagtapos

I. Introduction and Purpose of the Study (Panimula at Layunin ng Pag-aaral)

The researchers aim to help understand how elementary students perform in school with consideration of factors that are affecting their grades. By in-depth examining and use of advanced computer methods, researchers will collect and analyze various pieces of information, like attendance records and previous and current grades, that would help researchers to predict the academic performance of students. The study focuses on students in San Pedro Elementary School in Pampanga, Philippines.

Nilayon ng mga mananaliksik na matulungan ang pag-unawa kung gaano kahusay ang pagganap ng mga mag-aaral sa elementarya sa paaralan sa pamamagitan ng paggasaalang-alang sa mga salik na nakakaapekto sa kanilang mga grado. Gamit ang malalim na pagsusuri at mga masulong na pamamaraan ng kompyuter, mangongolekta at susuriin ng mga mananaliksik ang iba't ibang impormasyon tulad ng talaan ng pagdalo at mga dating at kasalukuyang grado na makakatulong sa mga mananaliksik na mahulang ang pang-akademikong pagganap ng mga mag-aaral. Ang pag-aaral na ito ay nakatuo sa mga mag-aaral ng San Pedro Elementary School sa Pampanga, Pilipinas.

II. Scope of the Study (Saklaw ng Pag-aaral)

This study aims to predict how well the grade 6 students at San Pedro Elementary School in Guagua, Pampanga, will perform academically. By examining their grades from the current and past school years, researchers hope to find patterns that indicate which students need help academically.

Ang pag-aaral na ito ay naglalayong hulaan kung gaano kahusay ang pagganap ng mga mag-aaral sa ika-6 baitang sa San Pedro Elementary School sa Guagua, Pampanga. Sa pamamagitan ng pagsusuri ng kanilang mga grado mula sa kasalukuyan at nakaraang mga taon, inaasahan ng mga mananaliksik na makahanap ng mga pattern na nagpapahiwatig kung aling mga mag-aaral ang nangangailangan ng tulong sa pang-akademiko.

III. Study procedures and expectation (Mga Pamamaraan at Inaasahan ng Pag-aaral)

The study will follow a structured procedure to ensure comprehensive and accurate data collection. First, the researchers will provide the survey to the teachers of the grade 6 students and teachers who will then give the surveys to their students. The students will bring the surveys home for their

parents or guardians to complete, covering topics such as their economic situation and other related matters. Afterwards, students will give the completed surveys back to their teachers, who will then forward them to the researchers for collection. Following this, some of the teachers from San Pedro Elementary School will take part in interviews to share their views on the school's learning environment, students' academic performance, and attendance.

Ang pag-aaral ay susunod sa isang maayos na pamamaraan upang matiyak ang kumpleto at tumpak na pagkolekta ng datos. Una, ibibigay ng mga mananaliksik ang survey sa mga guro ng Grade 6 na siyang magbibigay ng mga survey sa kanilang mga estudyante. Ang mga estudyante ay dadalhin ang mga survey sa kanilang mga magulang o tagapangalaga upang punan, na tumatalakay sa mga paksa tulad ng kanilang pinansyal na sitwasyon at iba pang kaugnay na bagay. Pagkatapos, ibabalik ng mga estudyante ang mga natapos na survey sa kanilang mga guro, na magpapasa nito sa mga mananaliksik para sa koleksyon. Kasunod nito, ang ilang guro mula sa San Pedro Elementary School ay makikilahok sa mga panayam upang ibahagi ang kanilang pananaw tungkol sa kapaligiran sa pag-aaral ng paaralan, pagganap ng mga estudyante, at pagdalo.

Participants are asked to answer the survey and interview questions openly and honestly. The process is designed to gather useful information while respecting the participants' time and privacy. Researchers will provide easy-to-follow instructions and support to make sure everything goes smoothly.

Ang mga kalahok ay hinihimok na sagutin ang mga tanong sa survey at panayam nang bukas at tapat. Ang proseso ay dinisenyo upang makakalap ng kapaki-pakinabang na impormasyon habang iginagalang ang oras at pribadong buhay ng mga kalahok. Magbibigay ang mga mananaliksik ng malinaw na tagubilin at suporta upang matiyak na maayos ang lahat.

IV. Statement that the study involves research (Pahayag na ang pag-aaral ay kasangkot sa pananaliksik)

The study will use a mixed-method approach, combining qualitative interviews and quantitative surveys. The qualitative component will involve interview with the teacher of the students, while the quantitative component will include a survey questionnaire on parent/guardian of a grade 6 students. Both interviews and surveys will be conducted with the participation of the parents or guardians, teacher, and researchers.

Ang pag-aaral ay gagamit ng isang pinagsamang pamamaraan, na nagkokombina ng mga kwalitatibong panayam at mga kwantitatibong survey. Ang kwalitatibong bahagi ay magsasangkot ng panayam sa guro ng mga estudyante, habang ang kwantitatibong bahagi ay maglalaman ng survey questionnaire para sa mga magulang o tagapangalaga ng mga mag-aaral sa Grade 6. Ang parehong mga panayam at survey



HOLY ANGEL UNIVERSITY



HOLY ANGEL
UNIVERSITY

SCHOOL OF COMPUTING



ay isasagawa sa pakikilahok ng mga magulang o tagapangalaga, guro, at mga mananaliksik.

V. Approximate number of participants (*Tinatayang bilang ng mga kalahok*)

The study will involve around 60 to 70 parents or guardians of Grade 6 students, as well as 1 to 5 teachers from San Pedro Elementary School, as participants.

Ang pag-aaral ay magsasangkot ng mga 60 hanggang 70 magulang o tagapangalaga ng mga mag-aaral sa Grade 6, pati na rin 1 hanggang 5 guro mula sa San Pedro Elementary School bilang mga kalahok.

VI. Expected duration of participation (*Inaabahang tagal ng pakikilahok*)

Participation may involve completing the interview and questionnaire that will take approximately for 10 minutes or less.

Ang pakikilahok ay maaaring magsangkot ng pagtapos ng interbyu at talatanungan na tatagal ng humigít-kumulang 10 minuto o mas mababa pa.

VII. Eligibility of the criteria purpose (*Layunin ng pamantayan ng pagiging karapat-dapat*)

The participants focused on this study must be the following:

Ang mga kalahok para sa pag-aaral na ito ay dapat na sumusunod sa mga kwalipikasyon:

For the conduction of survey questionnaires:

- A parent or guardian of a Grade 6 student attending in San Pedro Elementary School
- Can read and write in either English, Tagalog or in Kapampangan
- and must be 18 years old or above.

Para sa survey questionnaires:

- Magulang o tagapangalaga ng isang mag-aaral sa Grade 6 na nag-aaral sa San Pedro Elementary School.
- Maaaring bumasa at magsulat sa Ingles, Tagalog, o Kapampangan.
- Dapat ay 18 taong gulang o higit pa.

For the conduction of interviews:

- A licensed teacher/s of students enrolled at San Pedro Elementary School
- Can verbally communicate well in either English, Tagalog or in Kapampangan
- and must be 18 years old or above.

Para sa mga panayam:

- Lisenasyadong guro ng mga estudyanteng naka-enroll sa San Pedro Elementary School.
- Maaaring makipag-usap nang maayos sa Ingles, Tagalog, o Kapampangan.
- Dapat ay 18 taong gulang o higit pa.

VIII. Voluntary Participation and Authorization (*Kagustuhan sa Pakikilahok at Pahintulot*)

Participation in this study is completely voluntary. You have the right to decline or withdraw from the study at any time without facing any penalties. By signing this form, you are giving your consent to participate willingly.

Ang paglahok sa pag-aaral na ito ay ganap na boluntaryo. Mayroon kang karapatang tumanggi o bawiin ang iyong paglahok anumang oras nang walang anumang parusa. Sa pagpirma sa form na ito, binibigyan mo ng pahintulot ang iyong sarili na boluntaryong makilahok.

IX. Withdrawal from the Study and/or Withdrawal of Authorization (*Pagtanggi sa Pag-aaral at/o Pagtanggi ng Pahintulot*)

The parents/guardians and teachers can withdraw from the study at any time. They can choose to withdraw, and any collected data will be destroyed unless you authorize its use. Withdrawal will not affect your child's or student's academic standing or any future interactions with the institution.

Ang magulang/tagapag-alaga at guro ay maaaring tumanggi mula sa pag-aaral anumang oras. Maaari silang pumili na tumanggi at anumang nakolektang data ay sisirain maliban kung pahihintulutan mo ang paggamit nito. Ang pagtanggi ay hindi makakaapekto sa akademikong katayuan ng iyong anak o anumang hinaharap na pakikipag-ugnayan sa institusyon.

X. Potential Risks and Discomforts (*Posibleng Mga Panganib at Hindi Kaaya-ayang Karansan*)

There are minimal risks associated with participating in this study. Your child might feel uncomfortable sharing personal information, but participation is voluntary, and your child can withdraw at any time without any consequences.

Mayroong kaunting panganib na kaakibat ang pagsali sa pag-aaral na ito. Maaaring makaramdam ng pag-aalinlangan ang inyong anak sa pagbabahagi ng personal na impormasyon, nungunit ang pagsali ay kusang-loob, at maaari siyang umetas anumang oras nang walang magiging masamang epekto.

XI. Community sensitivities and expected benefits to the community or to society, or contributions to scientific knowledge (*Paggalang sa Sensitibilidad ng Komunidad at Inaabahang Mga Benepisyo sa Komunidad o Lipunan o Mga Ambag sa Kaalaman ng Siyentipiko*)



HOLY ANGEL UNIVERSITY



HOLY ANGEL
UNIVERSITY

SCHOOL OF COMPUTING



In conducting this research, the researchers are committed to respecting and addressing the sensitivities of the community. Researchers will carefully consider cultural beliefs, ensure privacy, and adhere to ethical standards to avoid any potential harm or offense.

Se pagsasawa ng pananaliksik na ito, ang mga mananaliksik ay nakatuon sa paggalang at pagtugon sa sensitibidad ng komunidad. Maingat na isasaalang-alang ng mga mananaliksik ang mga kultural na paniniwala, tiyakin ang privacy, at sundin ang mga pamantayang etikal upang maiwasan ang anumang potensyal na pinsala o paglabag.

XII. Assurance of confidentiality unless required by law (Pagiyyak ng Kumpidensyalidad maliban kung Kinakailangan ng Batas)

All information collected during this study will be kept confidential. No names or identity will be disclosed in any reports or publications. Data will be securely stored and only accessed by authorized research personnel. Confidentiality will be maintained unless disclosure is required by law.

Lahat ng impormasyon nakolekta sa panahon ng pag-aaral na ito ay mananatiling kumpidensyal. Walang pangalan o pagkakakilanlan ang isisiwalat sa anumang ular o publikasyon. Ang datos ay ligtas na itatago at maa-access lamang ng mga awtorisadong tauhan ng pananaliksik. Ang kumpidensyalidad ay pananatilihin maliban kung kinakailangan ng batas ang pagisisiwalat.

XIII. Data handling including storage and disposal of data at the end of the study (Pamamahala ng Datos kabilang ang Imbakan at Pagtatapon ng Data sa Pagtatapos ng Pag-aaral)

Researchers involved will keep all data collected safe by using secure, encrypted digital storage to protect your privacy and prevent unauthorized access. The researchers will remove or hide any personal details to keep your identity protected. Upon the completion of the study, researchers will permanently delete all digital files and destroy any paper records to make sure no personal information is left behind.

Ang mga mananaliksik na kasangkot ay panatilihin ligtas ang lahat ng nakolektang data sa pamamagitan ng paggamit ng ligtas na naka-encrypt na digital na imbakan upang protektahan ang iyong privacy at maiwasan ang hindi awtorisadong pag-access. Tatanggalin o tatakop namin ang anumang personal na detalye upang mapanatiling protektado ang iyong pagkakakilanlan. Sa pagtatapos ng pag-aaral, permanenteng tatanggalin ng mga mananaliksik ang lahat ng digital na file at sisirain ang anumang papel na tala upang matiyak na walang natitirang personal na impormasyon.

XIV. Statement of possible future use, affirming participant's right to refuse future storage and use of collected data (Pahayag ng Posibleng Hinaharap na Paggamit ng Datos na Nagpapatibay sa Karapatan

ng Kalahok na Tumangi sa Hinaharap na Imbakan at Paggamit ng Nakolektang Datos)

While the data collected during this study may be used for future research, researchers want to ensure that you have control over your information. You have the right to refuse any future use or storage of your data. If you decide you do not want your data to be used beyond this study, please let us know, and we will make sure that your data is not included in any future research or storage.

habang ang datos na nakolekta sa panahon ng pag-aaral na ito ay maaaring gamitin para sa hinaharap na pananaliksik, nais ng mga mananaliksik na tiyakin na ikaw ay may kontrol sa iyong impormasyon. Mayroon kang karapatang tumangi sa anumang hinaharap na paggamit o imbakan ng iyong datos. Kung magdesisyon kang hindi mo nais na magamit ang iyong datos lampas sa pag-aaral na ito, mangyaring ipaalam sa amin at titiyakin namin na ang iyong data ay hindi kasama sa anumang hinaharap na pananaliksik o imbakan.

XV. Statement describing feedback of study finding whether provided or not (Pahayag na Naglalarawan ng Katugunan ng mga Natuklasan ng Pag-aaral kung Ibinigay o Hindi)

Parents and guardians will not be given direct feedback on the study results. Rather, the findings will be shared with the teachers, who will use the information to enhance educational strategies and better support the students.

Ang mga magulang at tagapangalaga ay hindi makakatanggap ng direktang ular tungkol sa mga resulta ng pag-aaral. Sa halip, ang mga natuklasan ay ibabahagi sa mga guro, na gagamitin ang impormasyon upang mapabuti ang mga estratehiya sa edukasyon at mas suportahan ang mga estudyante.

XVI. Potential Benefits (Potensyal na Mga Benepisyo)

Your participation in this study will help the researchers based on your insights of your child's academic performance and can assist teachers and parents for the betterment on the academic needs of students.

Ang iyong pakikilahok sa pag-aaral na ito ay makakatulong sa mga mananaliksik batay sa iyong mga pananaw sa pang-akademikong panganap ng iyong anak at maaaring makatulong sa mga guro at magulang para sa ikabuti ng pang-akademikong pangangailangan ng mga mag-aaral.



HOLY ANGEL UNIVERSITY



HOLY ANGEL
UNIVERSITY

SCHOOL OF COMPUTING



XVII. List of Researchers involved and their contact information in the study team for further information:

Researcher (Mananaliksik): Baltazar, Gabriel Paolo I.

Email: gpaolobaltazar@gmail.com

Contact Number (Numero ng Telefono): +63 976 573 7246

Signature of Researcher
(Lagda ng Mananaliksik):

Researcher (Mananaliksik): Reyes, Lee Randall C.

Email: lerandcruzreyes@gmail.com

Contact Number (Numero ng Telefono): +63 999 517 6162

Signature of Researcher
(Lagda ng Mananaliksik):

Researcher (Mananaliksik): Suman, Pauline Yvonn V.

Email: yvonnsuman@gmail.com

Contact Number (Numero ng Telefono): +63 949 815 4023

Signature of Researcher
(Lagda ng Mananaliksik):

Researcher (Mananaliksik): Yap, Carl Gabriel S.

Email: yelyap56@gmail.com

Contact Number (Numero ng Telefono): +63 992 607 7121

Signature of Researcher
(Lagda ng Mananaliksik):

I hereby make a decision to participate in the research study. My signature below indicates that I voluntarily participate in the study after reading all the information. I understand the objective, procedures, duration, risks and benefits of the research. I consent to voluntarily be a participant of this study.

Ako ay nagdesisyon na lumahok sa pag-aaral na pananaliksik. Ang aking lagda sa ibaba ay nagpapahiwatig na ako ay voluntaryong lumalahok sa pag-aaral pagkatapos mabasa ang lahat ng impormasyon. Nauunawaan ko ang layunin, pamamaraan, tagal, panganib, at mga benepisyo ng pananaliksik. Ako ay kusang-loob na pumapayag na maging kalahok sa pag-aaral na ito.

Yes (Oo)

I understand that I will be given a copy of this signed consent form.

Nauunawaan ko na makakakuha ako ng kopya ng form na ito na may pirma.

Name of Participant (optional) Pangalan ng Kalahok (opsyonal):

Name of Grade 6 Student representing
(Pangalan ng Mag-aaral sa Baitang 6 na kinakatawan):

Signature of Participant (Lagda ng Kalahok):

Date (Petsa): _____



HOLY ANGEL UNIVERSITY

Appendix H Website Evaluation Questionnaire (Teachers)



Greetings!

We are fourth-year students at Holy Angel University pursuing a Bachelor of Science with a major in computer science. The team is currently working on a research study titled "*Prediction of Academic Performance Level of Graduating Elementary Students*" with the goal of creating a website that uses an assessed predictive model to predict academic performance levels among graduating elementary students. Part of the research involves assessing the functionality, usability, reliability, performance, and supportability of our developed website.

As a website evaluator, the researchers assure that your confidentiality and privacy will be protected for any data collected during this study.

Website Evaluation

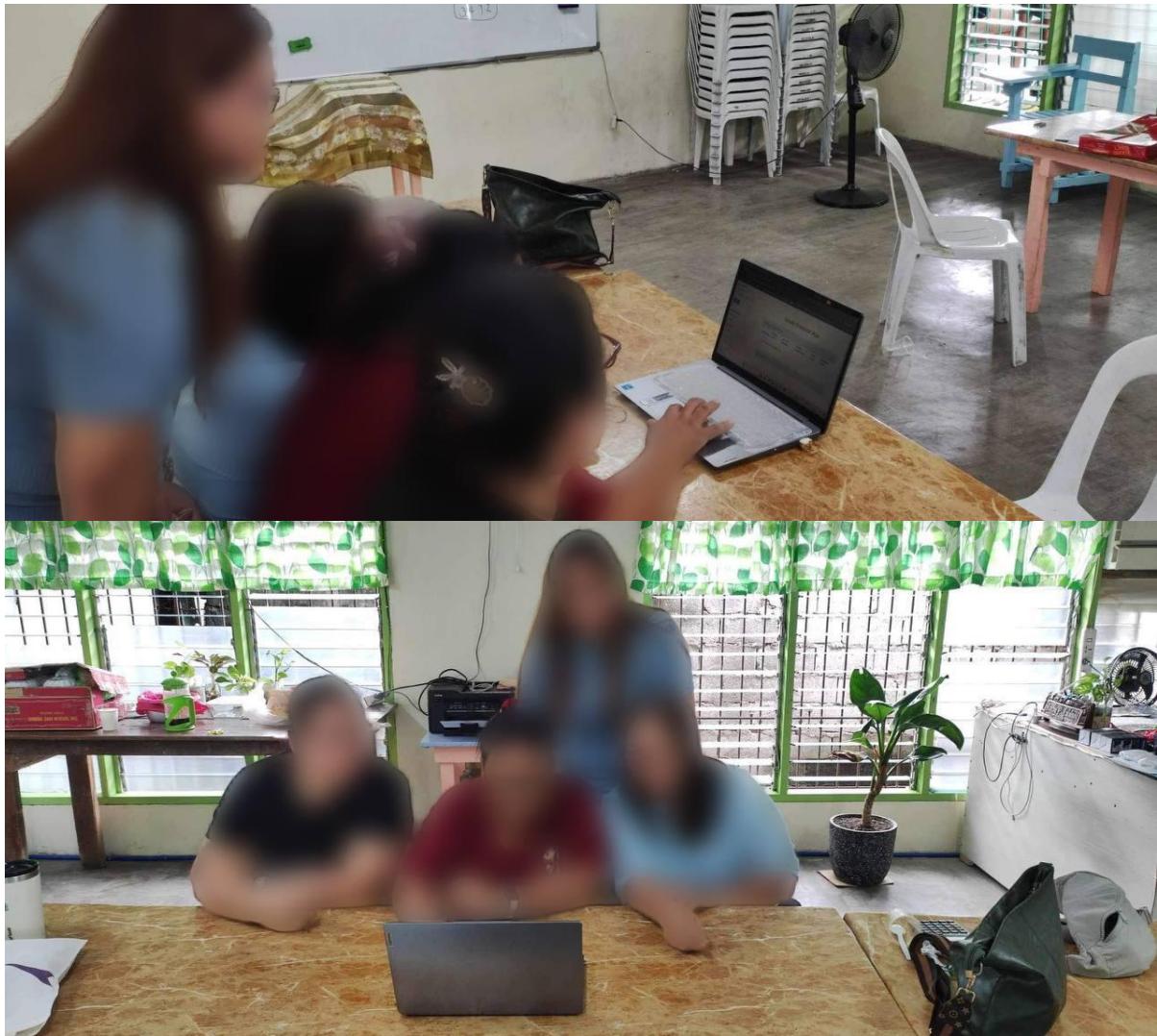
Instruction: Please evaluate the website using the given scale by putting a checkmark (✓) under the corresponding numerical rating.

5 = Highly Acceptable	3 = Acceptable	1 = Not Acceptable	1	2	3	4	5
4 = Very Acceptable	2 = Fairly Acceptable						
Functionality							
Compliance	The website includes all necessary features for grade prediction (e.g., data input, records of data).						
Suitability	The website aligns with the objectives of predicting students' academic performance.						
Usability							
Ease of Use	Website user-friendly and easy to navigate.						
Overall Interface Design	Overall appearance of the website. (Font, color, style, etc.).						
Consistency	The website's layout is consistent and structured, making it easy to explore and use.						
Reliability							
Accuracy	The website provides an accurate result expected output.						
Fault Tolerance	The website function consistently without crashing or technical issues.						
Predictability	Predictions generated by the website free from errors or inaccuracies.						
Performance							
Response Time	The website load and process data quickly, without significant delays.						
Resource Consumption	The website run smoothly without overloading system resources (e.g., memory, CPU).						
Throughput	It has acceptable response and throughput time.						
Supportability							
Adaptability	The website be adapted to different educational contexts (e.g., different grade levels).						

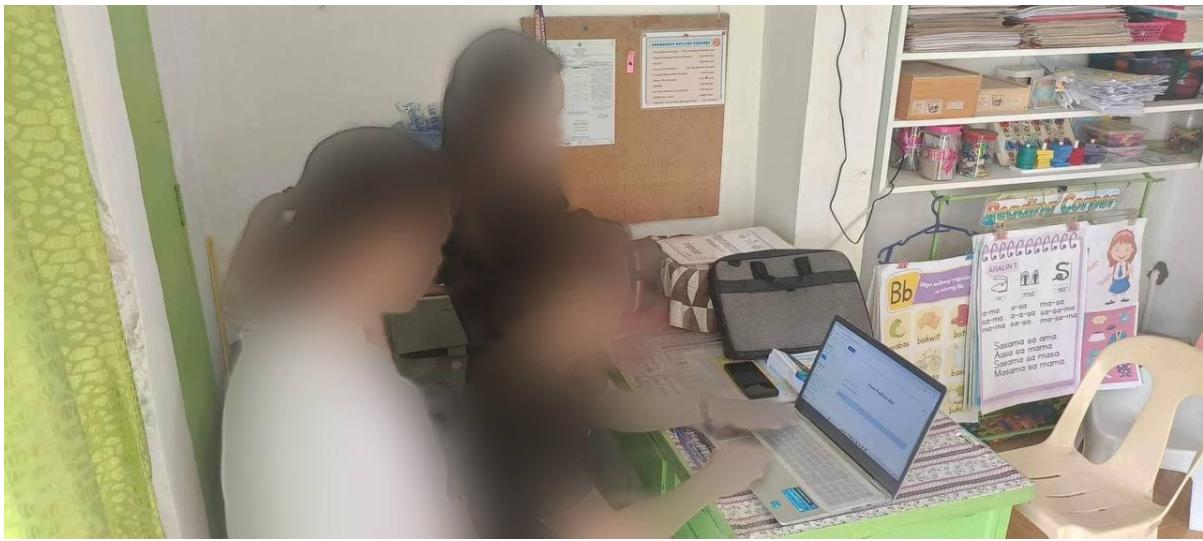
Does the application make accurate predictions? Yes No

HOLY ANGEL UNIVERSITY

Documentation



HOLY ANGEL UNIVERSITY



HOLY ANGEL UNIVERSITY

Appendix I Website Evaluation Questionnaire (Experts)



Greetings!

We are fourth-year students at Holy Angel University pursuing a Bachelor of Science with a major in computer science. The team is currently working on a research study titled "Prediction of Academic Performance Level of Graduating Elementary Students" with the goal of creating a website that uses an assessed predictive model to predict academic performance levels among graduating elementary students. Part of the research involves assessing the functionality, usability, reliability, performance, and supportability of our developed website.

As a website evaluator, the researchers assure that your confidentiality and privacy will be protected for any data collected during this study.

Website Evaluation

Instruction: Please evaluate the website using the given scale by putting a checkmark (✓) under the corresponding numerical rating.

5 = Highly Acceptable	3 = Acceptable	1 = Not Acceptable	1	2	3	4	5
4 = Very Acceptable	2 = Fairly Acceptable						
Functionality							
Compliance	The website addresses the defined set of features needed (manual input/file upload, user login, data set, user index, and prediction results).						
Suitability	The website has completed the necessary set of features following its primary objectives.						
Usability							
Human factors	Easy for the user to learn and operate its application.						
Overall Aesthetics	Overall appearance of the website. (Font, color, style, etc.)						
Consistency	Website design is applicable, and it conforms to the standard. (Design is not mixed up)						
Reliability							
Accuracy	The website provides an accurate result expected output.						
Fault Tolerance	It has ability to a specified level of performance in case of failure.						
Predictability	The website operates in a consistent and expected manner, regardless of different inputs.						
Performance							
Speed of Processing	Processing speed is equivalent to the user's expectations or standards.						
Resource Consumption	The website makes efficient use of system resources to carry out its activities/functions.						
Throughput	It has acceptable response and throughput time.						
Efficiency	The website is competent, well-organized, and effective.						
Supportability							
Adaptability	It could adapt to different environments without applying other functions to it.						
Configuration	It is maintainable and is easy to modify the website and remove faults.						

Let Us Know Your Thoughts!

Please share any comments or suggestions regarding our website application.



HOLY ANGEL UNIVERSITY

Appendix J Project Description

Project title	Prediction for Academic Performance Level of Graduating Elementary Students.
Purpose	The purpose of this Grade Predictor App is to predict the academic performance of grade 6 students using a multi-level classification system. Moreover, the aim of this is to provide an administrative hub for teachers to early determine students' academic performance and to adjust teaching methods, visual aids, and other learning materials.
Target users	The intended users of this Grade Predictor App are grade 6 teachers in general.
Scope	The aim of this Grade Predictor App is to predict the academic performance of grade 6 students using a multi-level classification system. This is achieved by creating a database of Grade 6 students from San Pedro Elementary School (SPES) for the school year 2024-2025, which includes data family financial situation, learning environment, their current and historical grades, and their class attendance that had been inputted into the system.



HOLY ANGEL UNIVERSITY

Appendix K Software and Hardware Specifications

Development Requirements for the Website Application

<i>Hardware Requirements</i>	
<i>Hardware Type</i>	<i>Specification</i>
Computer / Laptop	
Processor	Minimum: Intel Core i5 (8th Generation) or AMD Ryzen 5 equivalent.
Ram	Minimum: 8 GB.
Storage	Minimum: 256 GB SSD.
Graphics	Minimum: Nvidia GTX 1650
Internet Connection	Minimum Speed: 10 Mbps download / 5 Mbps upload.

<i>Software Requirements</i>	
<i>Software Type</i>	<i>Specification</i>
Operating System	Windows 10/11, macOS Catalina or higher, or Linux (Ubuntu 20.04 or higher)
Languages	Python 3.x, JavaScript (ES6 or higher), HTML5, CSS3, and SQL
Libraries	Bootstrap, Flask
Services	Render
Asset Provided / Editor	Figma
IDE	Microsoft Visual Studio Code



HOLY ANGEL UNIVERSITY

Implementation Requirements for the Website Application

<i>Hardware Requirements</i>	
<i>Hardware Type</i>	<i>Specification</i>
Computer / Laptop	
<i>Ram</i>	Minimum: 8 GB.
<i>Storage</i>	Minimum: 256 GB SSD.
<i>Internet Connection</i>	Minimum Speed: 10 Mbps download / 5 Mbps upload.

<i>Software Requirements</i>	
<i>Software Type</i>	<i>Specification</i>
<i>Operating System</i>	Windows 10/11, macOS Catalina or higher, or Linux (Ubuntu 20.04 or higher)



HOLY ANGEL UNIVERSITY

Appendix L Entity Relationship Diagram

Entity Relationship Diagram

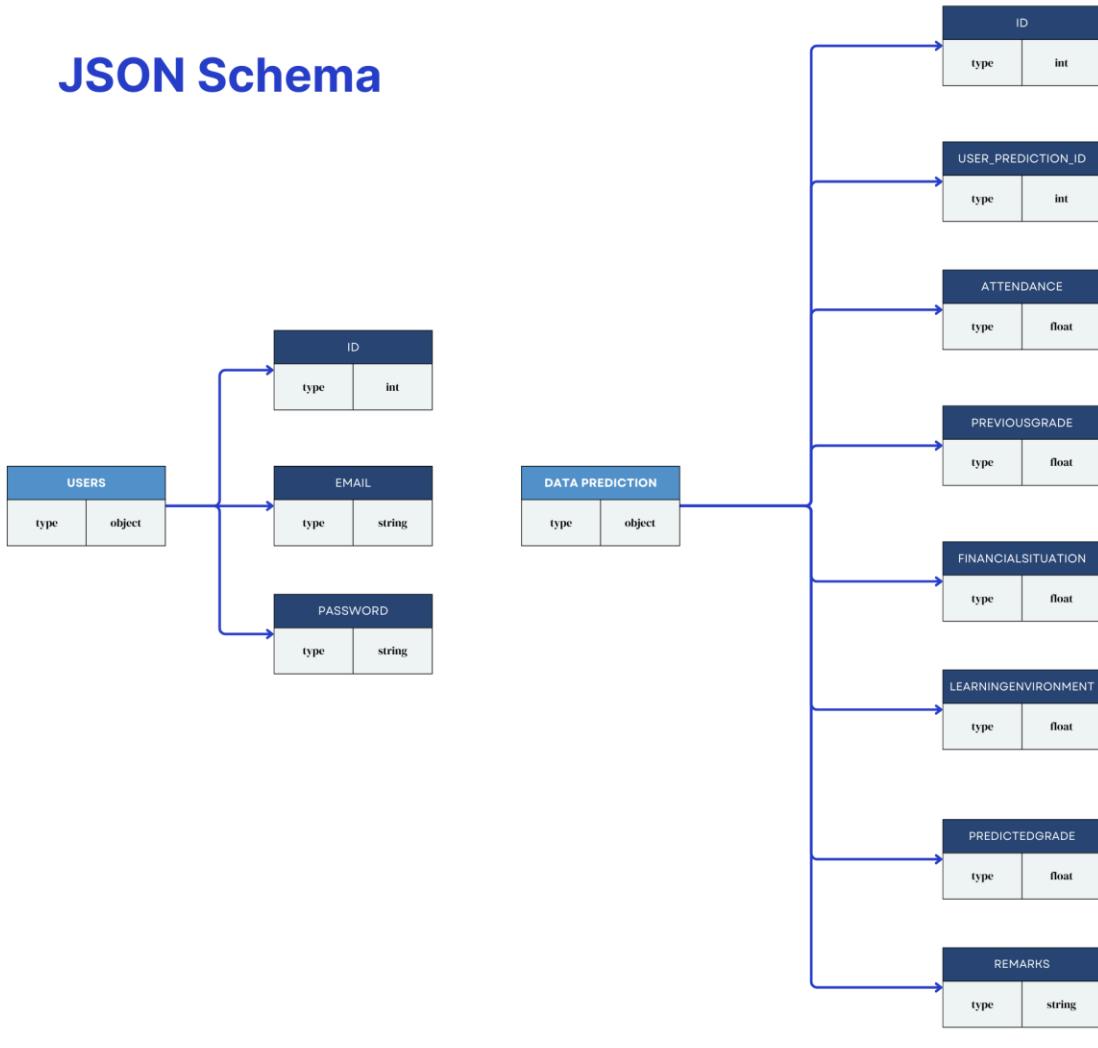
USER
PK - id (Integer)
Unique - email (String, 150)
password (String, 255)

DATA
PK - id (Integer)
user_prediction_id (Integer)
attendance (Float)
previousGrade (Float)
financialSituation (Float)
learningEnvironment (Float)
predictedGrade (Float)
remarks (String, 50)
FK - user_id (Integer)



Appendix M
JSON Schema

JSON Schema



HOLY ANGEL UNIVERSITY

Appendix N Pseudocode

Website Application

Sidebar Toggle Functionality

1. Initialize the buttons ‘toggleBtn’ and ‘toggleBtnCollapsed’ initialize ‘sidebar’ and ‘mainContent’ elements.
2. Add event listener for ‘toggleBtn’ click:
 - a. Collapse sidebar by adding ‘collapsed’ class.
 - b. Hide ‘toggleBtn’ and show ‘toggleBtnCollapsed’.
3. Add event listener for ‘toggleBtnCollapsed’ click:
 - a. Expand sidebar by removing the ‘collapsed’ class.
 - b. Hide ‘toggleBtnCollapsed’ and show ‘toggleBtn’.

Slider Value Function

1. Define function ‘updateSliderValue’ with ‘sliderId’ and ‘valueId’ parameters.
2. Retrieve the elements using IDs.
3. Add event listener for slider ‘input’ event:
 - a. Update ‘valueDisplay’ text content with the slider’s value.

Initialize Sliders

1. Call ‘updateSliderValue’ for each slider: ‘financialSituation’ and ‘learningEnvironment’.

Form Submission and Prediction Handling

1. Add event listener for form submission:
 - a. Prevent default form submission.
 - b. Retrieve values from factors.



HOLY ANGEL UNIVERSITY

- c. Validate all required fields and display alerts if values are missed.
- d. Calculate the percentage of the attendance by dividing ‘daysPresent’ by ‘schoolDays’
- e. Create a data object with the form values.
- f. Send the data to the Server via a POST request to ‘/predict’.
- g. If there is an error, display error message.
- h. If successful, update the first accordion with inputs and the predicted grades.
- i. Update the second accordion with the student ID and predicted grades.
- j. Display the predicted grades in the ‘prediction-result’ element.

Styling: Sidebar and Main Content Layout

1. Define styles for sidebar and main content.
2. Handle sidebar transition for collapsing and expanding.
3. Apply media queries for mobile view to adjust layout and handle sidebar.

Flask Login Handling

1. User submits the login form:
 - a. Retrieve ‘email’ and ‘password’:
 - b. Check if the user exists in the database.
 - i. If the user exists and the password is correct, the user is logged in.
 - ii. If the user does not exist or password is incorrect, display an error message.
2. Logout function
 - a. Log the user out and redirect to the login page.

Flask Route for Prediction

1. When ‘/predict’ is accessed:



HOLY ANGEL UNIVERSITY

- a. Ensure user is authenticated, otherwise display an error message.
- b. Parse and validate input data.
- c. Use the pre-trained model to predict the grade based on input features.
- d. Store the results in the database with a user-specific prediction ID.
- e. Return the results and student ID as a response.

File Upload and CSV Processing

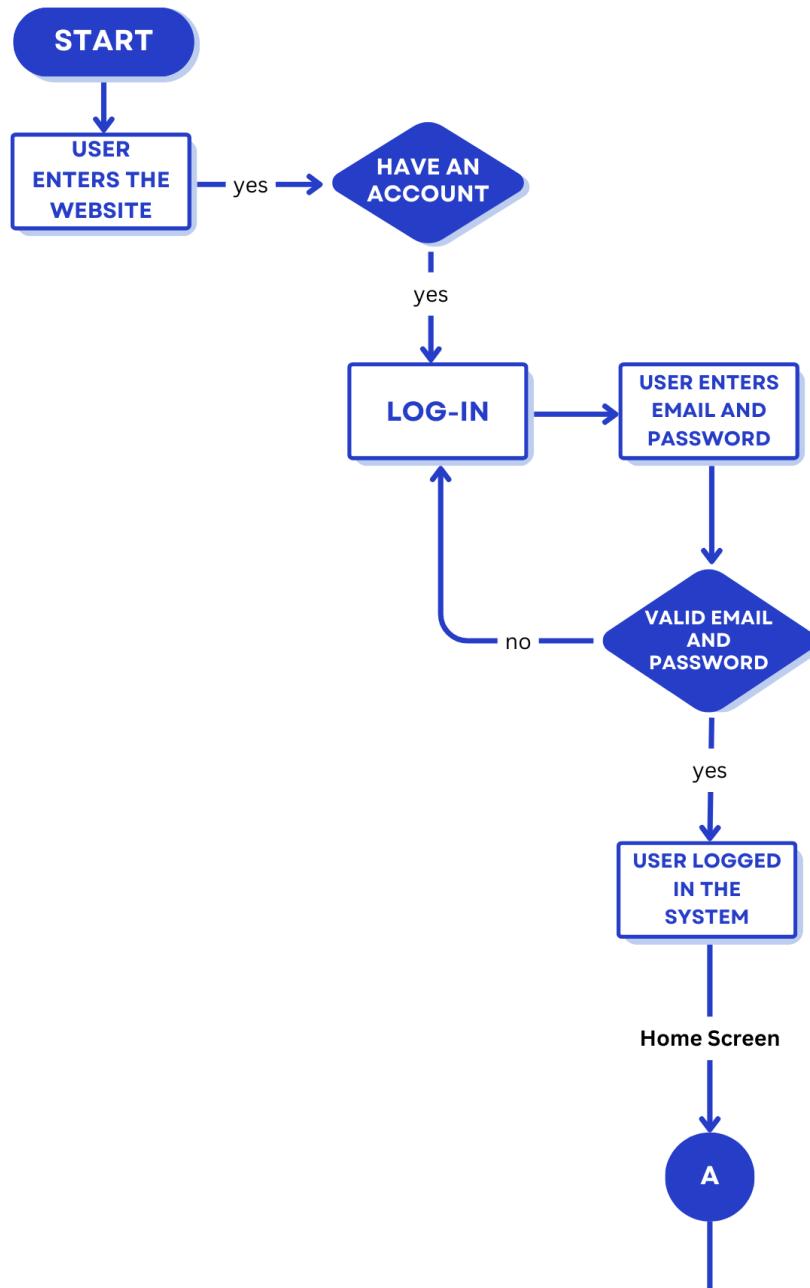
1. Handle file upload via the '/upload' route:
 - a. Check if a file is provided and if its filename is valid.
 - b. Save the file in the 'uploads' directory.
 - c. Parse the CSV file and check if required columns are present.
 - d. For each row in the CSV:
 - i. Extract the features.
 - ii. Use the model to predict the grades.
 - iii. Store the prediction in the database with a user-specific ID.
 - e. Commit all new entries to the database and redirect to the home page.



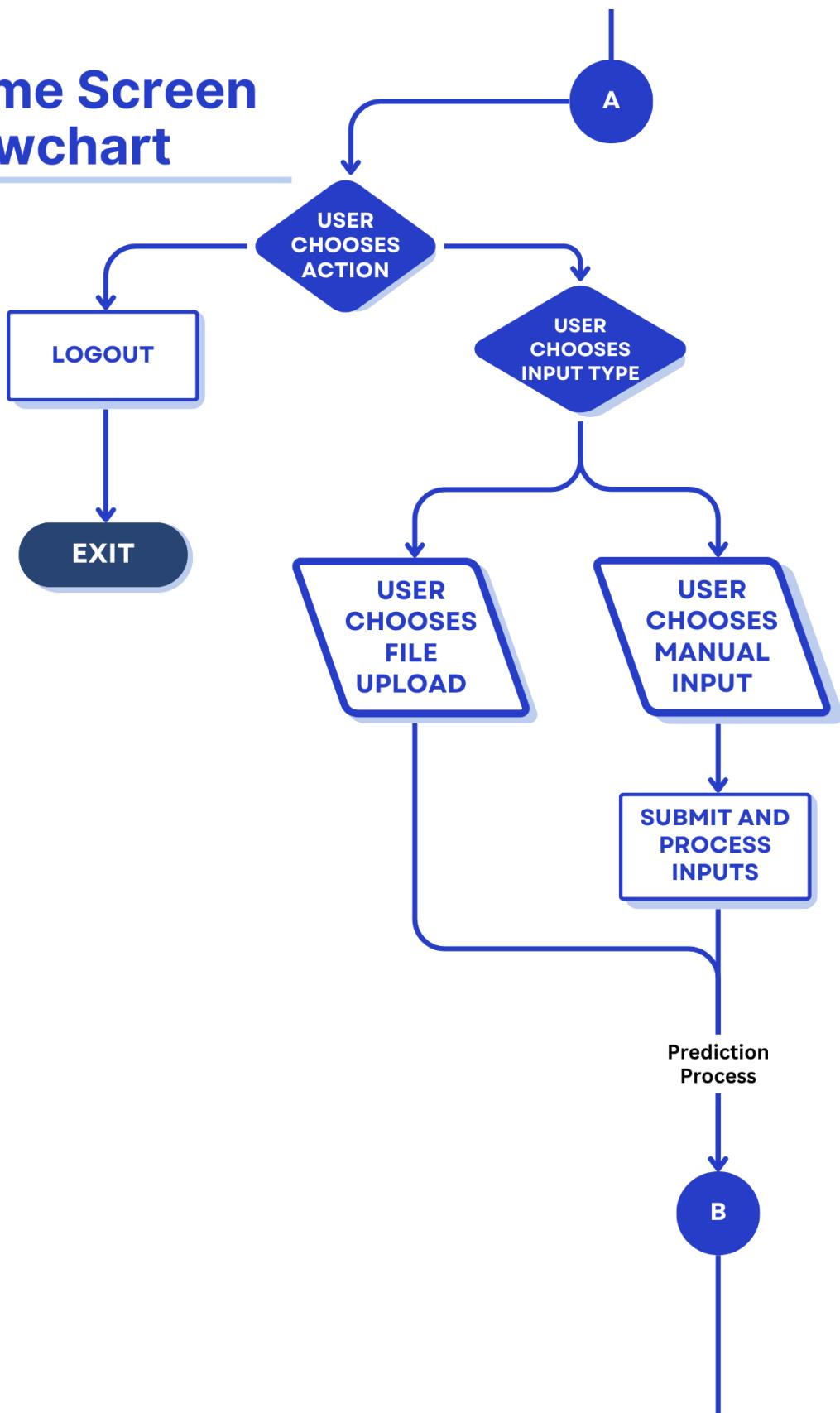
Appendix O
Flowcharts

Flowchart for the Web Application

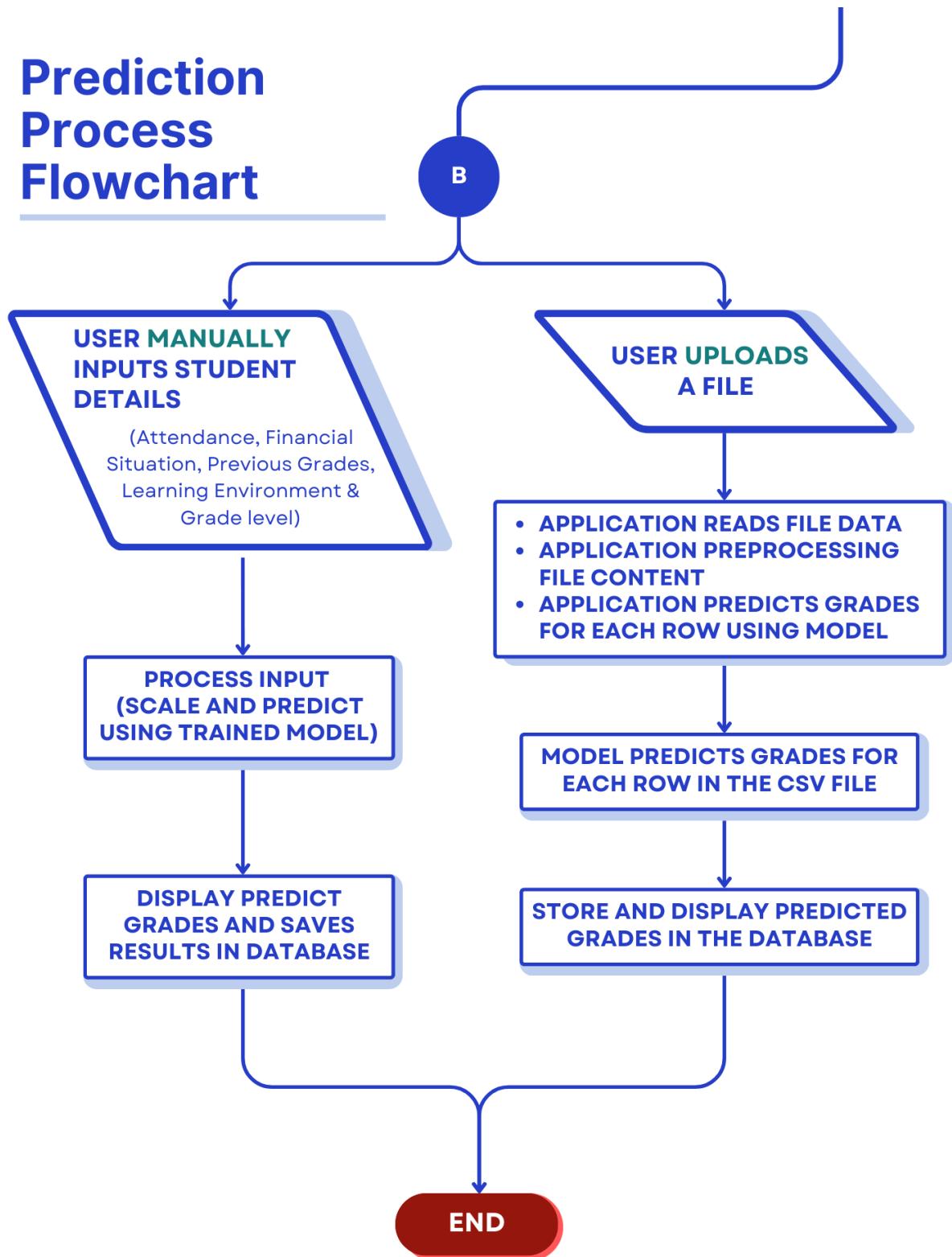
Authentication Flowchart



Home Screen Flowchart

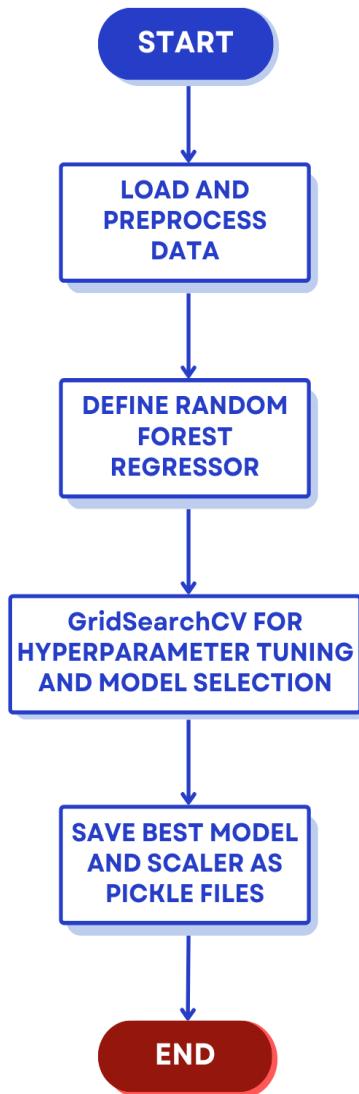


Prediction Process Flowchart



Flowchart for the Algorithm

Model Training Flowchart

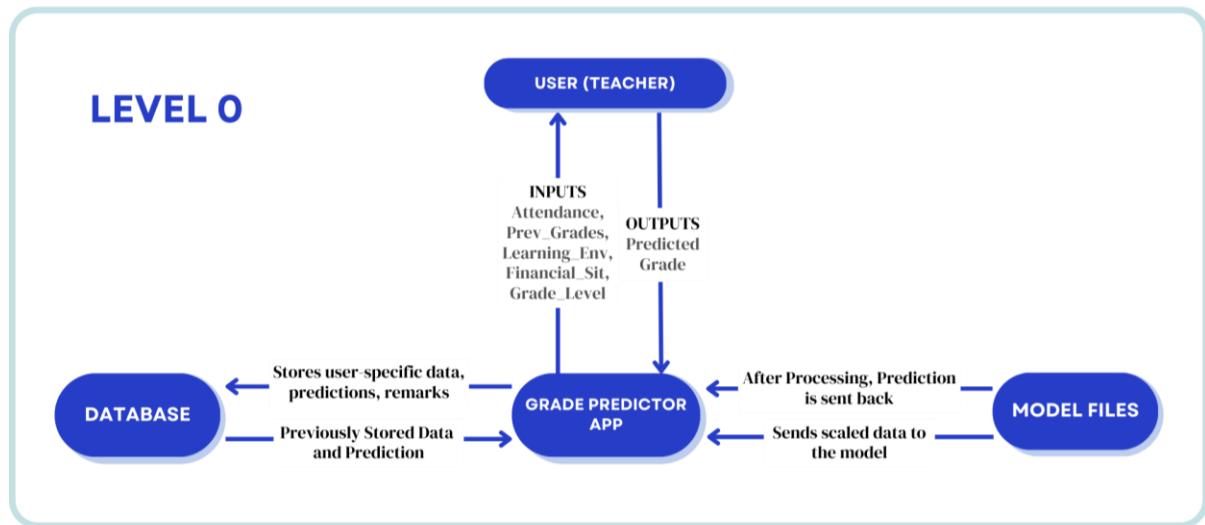


HOLY ANGEL UNIVERSITY

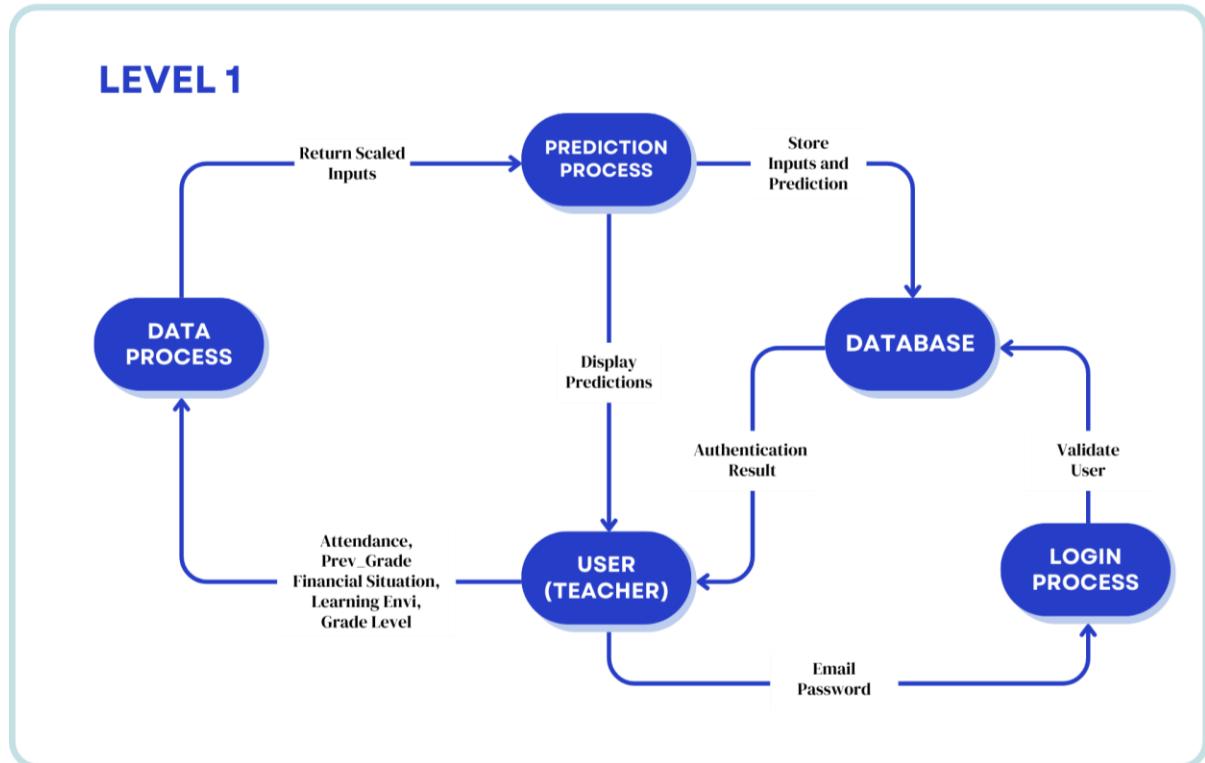
Appendix P Data Flow and Use Case Diagrams

Data Flow Diagram

Data Flow Diagram (Level 0 DFD)

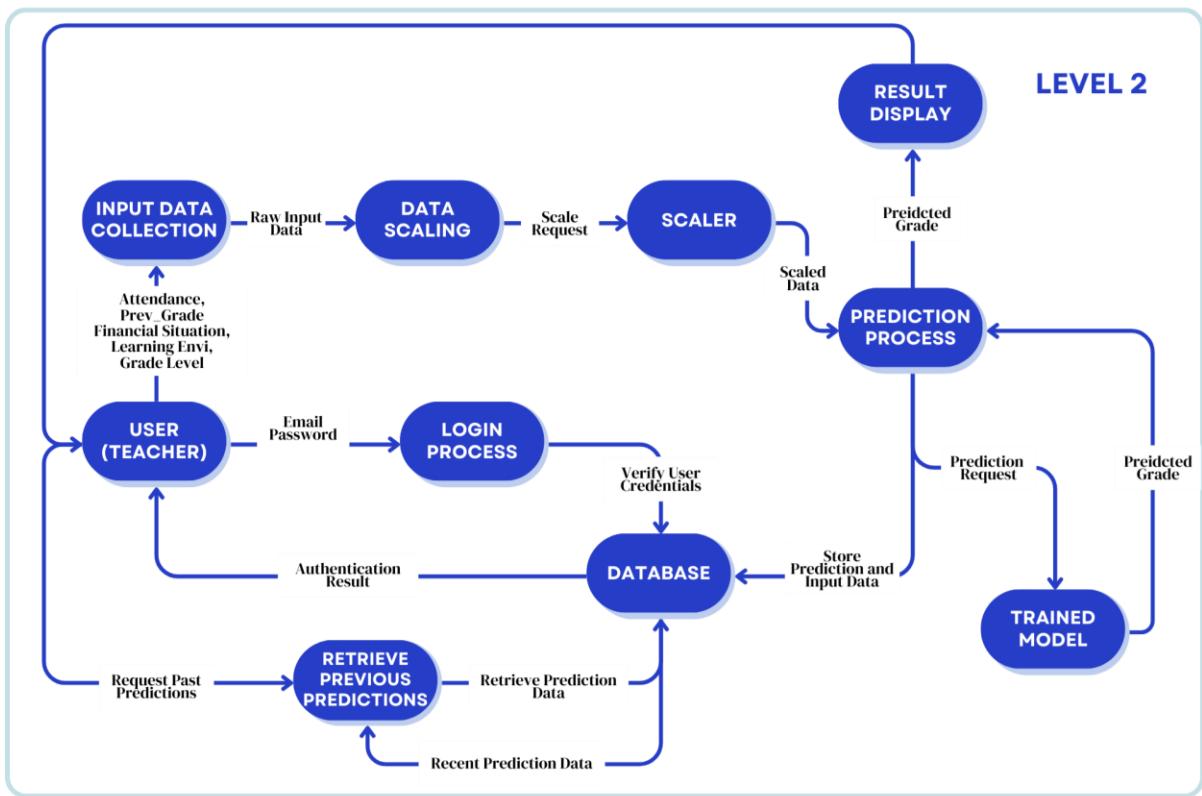


Data Flow Diagram (Level 1 DFD)



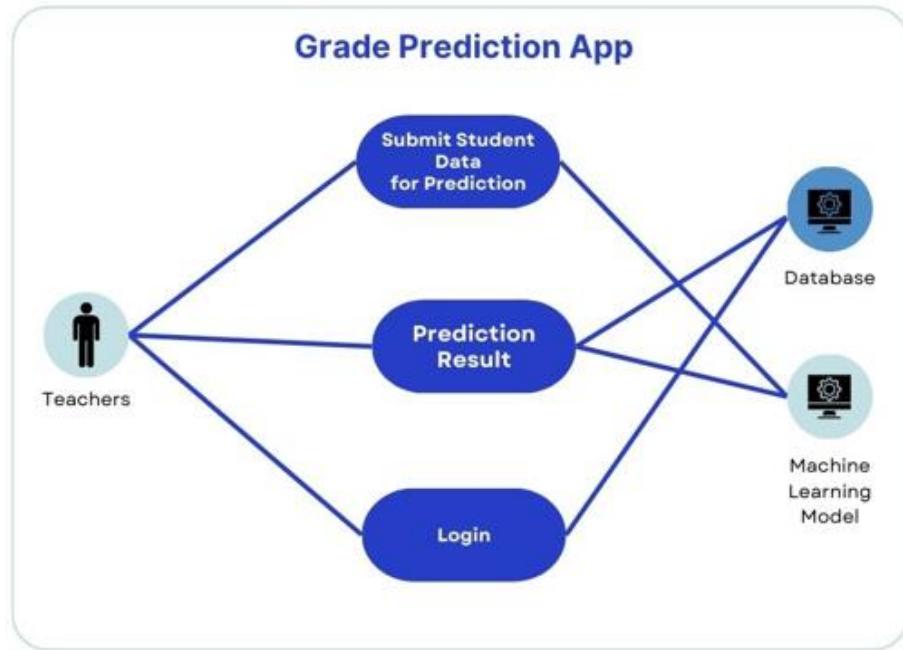
HOLY ANGEL UNIVERSITY

Data Flow Diagram (Level 2 DFD)



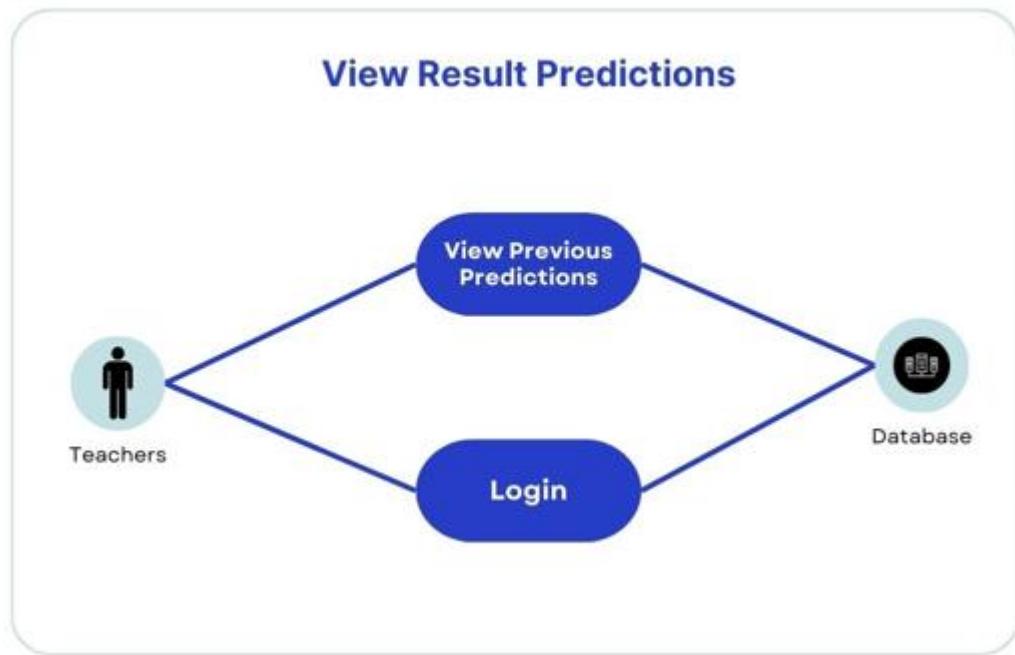
Use Case Diagram

Use Case Diagram (Grade Prediction App)



HOLY ANGEL UNIVERSITY

Use Case Diagram (*View Results Prediction*)



Use Case Scenario 1 (*Submit Student Information for Prediction*)

Use Case Name: Submit Student Information for Prediction	ID: UC - 1
Actor/s: Teachers, Database & Model	
Description: The teacher submits the student information on their own choice which would be either manually or CSV upload for the system to process and return a prediction. The data is validated, scaled, and passed to the model for prediction. After these actions, the results would be stored in the database and displayed back to the teacher.	
Trigger/s: The teacher submits the data either manually or uploads a CSV file.	
Precondition: <ol style="list-style-type: none">1. The teacher must be logged in.2. The system must be available for the data.3. The model must be properly deployed.	
Main Success Scenario:	Extensions (Alternative Flows):

HOLY ANGEL UNIVERSITY

<ol style="list-style-type: none">1. The teacher logs in.2. The teacher chooses to either manually input or upload a CSV file.3. The system validates the input data.4. The system scales the input data using the scaler.5. The scaled data is passed to the model.6. The model predicts a student's grade.7. The predicted grade is displayed back to the teacher.8. The system stores the data in the database.	<p>Invalid Data: if the data is incomplete or incorrectly formatted, the system prompts the teacher to correct the error.</p> <p>CSV Upload Errors: If the CSV is missing required columns or has the wrong format, the system rejects the file and notifies the teacher.</p> <p>Model Prediction Error: If an error occurred during prediction, the system notifies the teacher.</p>
<p>Postconditions:</p> <ol style="list-style-type: none">1. The data are stored in the database.2. The teacher views the predicted grade.	
<p>Exceptions: If the system is down or the model file has been corrupted, predictions cannot be made, and an error will be displayed to the teachers.</p>	

Use Case Scenario 2 (Submit Student Information for Prediction)

Use Case Name: View Recent Predictions	ID: UC - 2
Actor/s: Teachers & Database (SQLAlchemy)	
<p>Description: The teacher requests to view the recent student information and predictions. The system</p>	



HOLY ANGEL UNIVERSITY

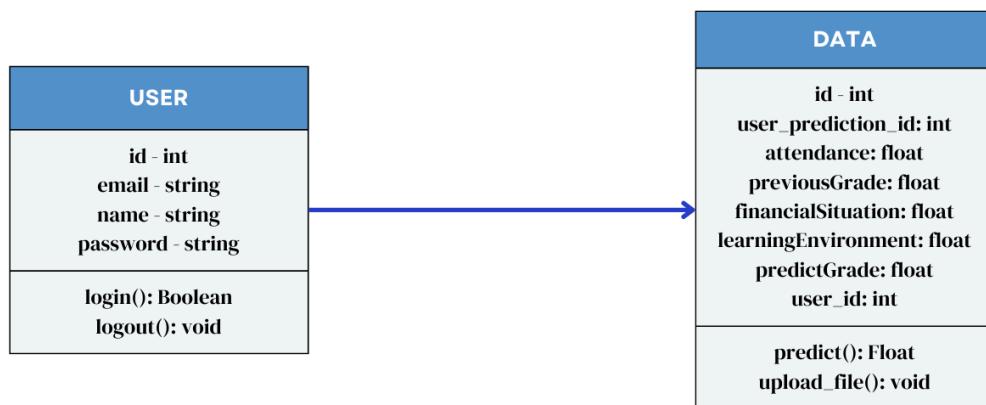
retrieves the stored records from the database and displays them back to the user.	
Trigger/s: The teacher selects the option to view recent predictions.	
Precondition: <ol style="list-style-type: none">1. The teacher must be logged in.2. Recent predictions must exist in the database.	
Main Success Scenario: <ol style="list-style-type: none">1. The teacher logs in.2. The teacher requests to view the recent predictions.3. The system queries the database for the stored predictions.4. The database returns the records.5. The system displays the stored predictions to the teacher.	Extensions (Alternative Flows): No Predictions Found: If no predictions are found, the system notifies the teacher that no records exist. Database Query Error: If the system fails to retrieve records from the database because of connection issues or corruption, the system displays an error.
Postconditions: <ol style="list-style-type: none">1. The teacher views the recent predictions.2. The system completes the query and shows the teacher the recent predictions.	
Exceptions: If the database is unavailable, the system is unable to retrieve the records and displays an error.	



Appendix Q
UML Class Diagram

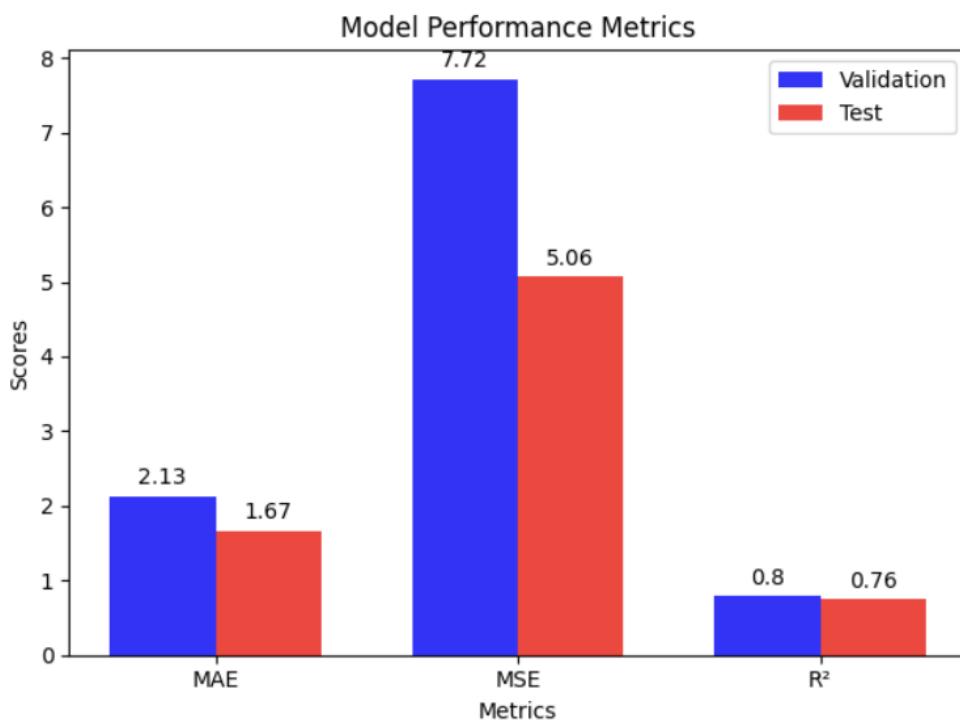
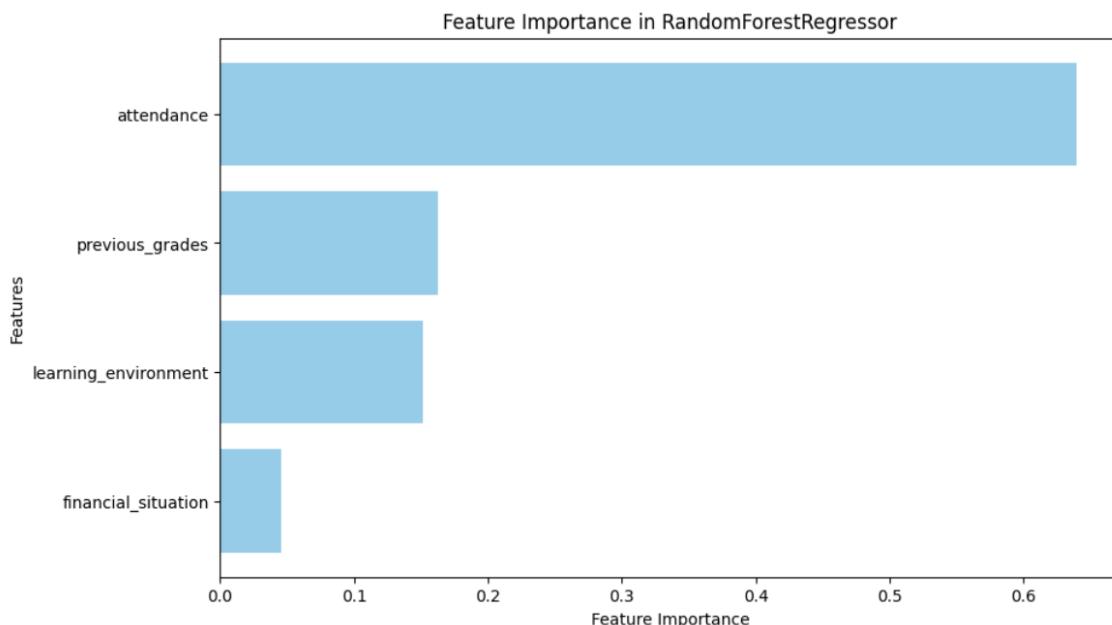
UML Class Diagram

UML Class Diagram



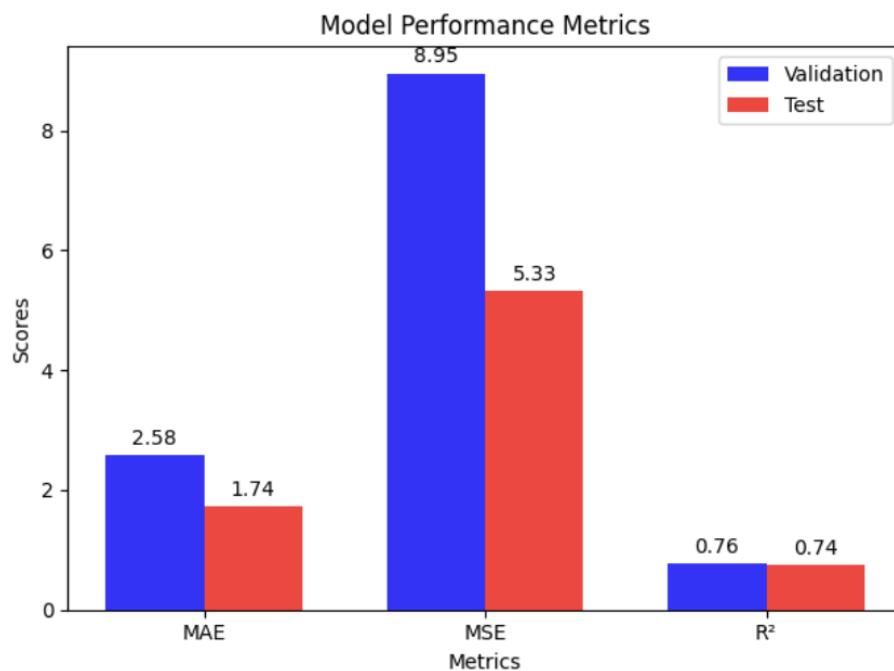
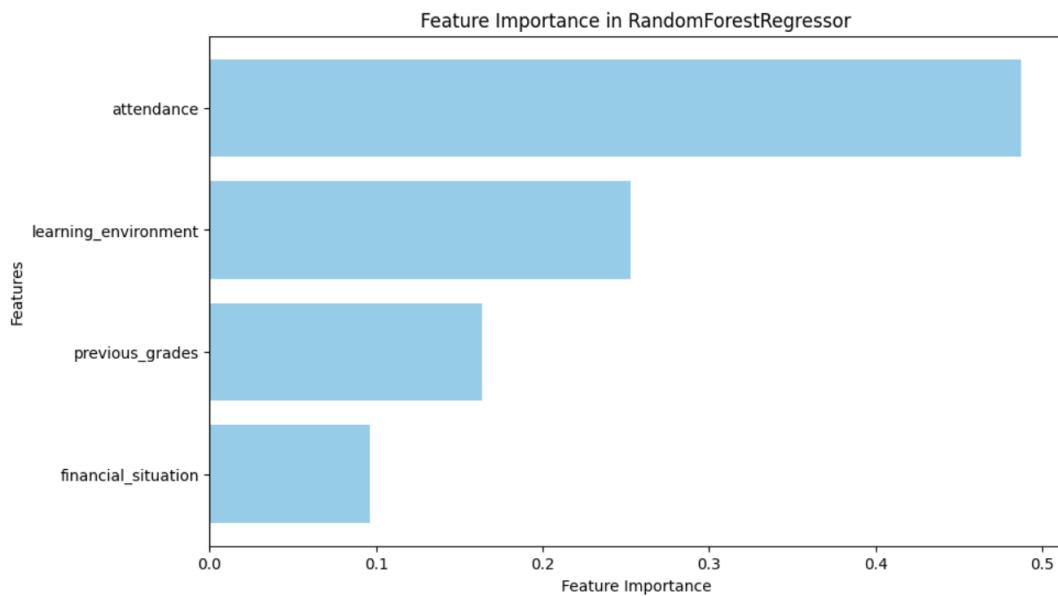
Appendix R Model Performance

Baseline Metrics



HOLY ANGEL UNIVERSITY

Tuned Metrics



HOLY ANGEL UNIVERSITY

Appendix S Project Schedule

Work Breakdown Structure (WBS)

#	Process	Predecessor	Duration (days)
Phase I: Planning			
1.1	Group Creation and Brainstorming	N/A	14
1.2	Research Titles Proposal	1.1	14
1.3	Paper (Chapter 1): Proposal	1.2	24
1.4	Paper (Chapter 2): Proposal	1.3	26
1.5	Final Proposed Paper	1.4	31
1.6	Manuscript and Video Presentation	1.5	31
1.7	Proposal Defense	1.6	1
1.8	Proposal Revision	1.7	8
1.9	Proposal Submission	1.8	2
Phase II: Project Preparation, Coding, and Implementation			
2.1	Design and Planning	1.9	18
2.2	Model Structure	2.1	28
2.3	Meeting with Thesis Adviser	2.1	5
2.4	Data Collection Preparation	2.3	22
2.4.1	Data Gathering	2.4	15
2.4.2	Data Finalization	2.4.1	15
2.4.3	Data Analysis and Pre-processing	2.4.2	8
2.5	Troubleshooting and Debugging	2.2	7
2.6	Model Training	2.5	4
2.7	Website and Model Development	2.6	3



HOLY ANGEL UNIVERSITY

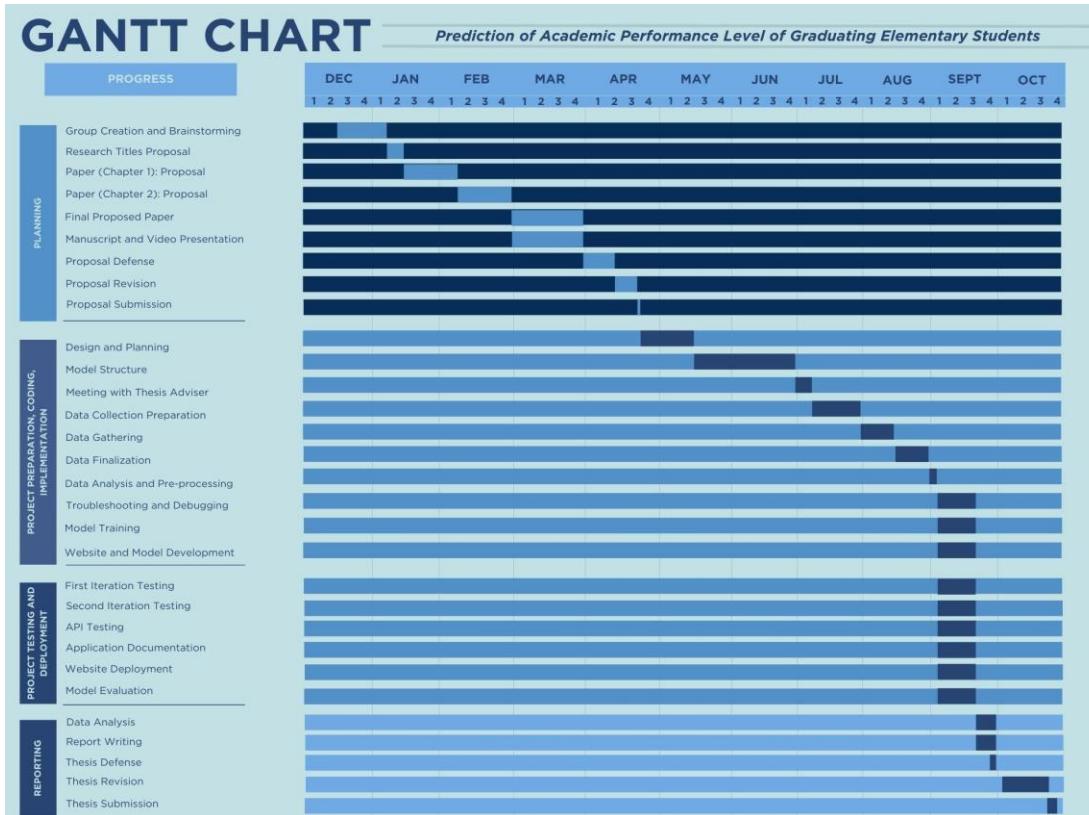
Phase III: Project Testing and Deployment

3.1	First Iteration Testing	2.7	7
3.2	Second Iteration Testing	3.1	7
3.3	API Testing	3.2	7
3.4	Application Documentation	3.3	10
3.5	Website Deployment	3.3	3

Phase IV: Reporting

4.1	Data Analysis	3.2	4
4.2	Report Writing	4.1	3
4.3	Thesis Defense	4.2	1
4.4	Thesis Revision	4.3	14
4.3	Thesis Submission	4.4	2

Gantt Chart



HOLY ANGEL UNIVERSITY

Appendix T Predicted and Actual Grades

Student ID	Actual Grades	Predicted Grades
1	76	81.48
2	82	80.5
3	81	81.09
4	79	81.84
5	79	81.54
6	81	82.65
7	84	83.7
8	85	81.65
9	77	80.34
10	76	82.7
11	85	83
12	85	83.7



HOLY ANGEL UNIVERSITY

13	90	82.39
14	89	80.66
15	76	81.55
16	90	81.93
17	75	80.83
18	90	81.82
19	84	81.12
20	88	82.15
21	87	82.61
22	89	81.29
23	81	82.48
24	80	83.7
25	84	81.54
26	78	81.31
27	86	81.88



HOLY ANGEL UNIVERSITY

28	81	80.56
29	82	80.83
30	89	83.85
31	90	80.59
32	83	80.91
33	90	83.57
34	86	83.04
35	89	82.48
36	84	80.94
37	83	81.29
38	79	81.65
39	84	81.18
40	84	80.59
41	84	81.72
42	91	80.89



HOLY ANGEL UNIVERSITY

43	80	81.48
44	85	82.23
45	83	81.11
46	82	81.54
47	78	81.31
48	88	81.77
49	76	80.83
50	89	81.12
51	90	82.23
52	82	80.64
53	84	81.93
54	87	83.28
55	85	81.79
56	91	81.99
57	79	81.54



HOLY ANGEL UNIVERSITY

58	80	81.98
59	86	82.62
60	89	81.11
61	88	80.91
62	83	81.31
63	84	83.01
64	85	80.74
65	90	81.79
66	92	81.18
67	77	81.97
68	81	81.39
69	80	81.93
70	84	83.36
71	75	82.15
72	87	83.09



HOLY ANGEL UNIVERSITY

73	89	81.28
----	----	-------

74	82	81.77
----	----	-------

75	86	82.12
----	----	-------

76	85	80.74
----	----	-------

Average	83.92105	81.77342
---------	----------	----------



HOLY ANGEL UNIVERSITY

Appendix U Experts' Curriculum Vitae

Website Development Professionals



**JOSHUA EDWIN DELA
OFFICE MANAGER/SENIOR
PROJECT MANAGER**

PROFILE

Senior Project Manager with over 8 years of experience providing technical project management across multiple clients.

CONTACT

jdr@e-bureauet.dk

<https://www.linkedin.com/in/joshuadelaro/>

(63) 948-792-9840

Blk 11 Lot 26 Avery St.

Rimaven Subd. Purok San Isidro

Dau Mabalacat Pampanga

EXPERIENCE

SENIOR PROJECT MANAGER/OFFICE MANAGER

JUNE 2016-PRESENT

Clients worked on:

AAK, Alzheimerforeningen, Andersen, Apotekets, Baxter, Bayer, Beierholm, Boë Beauté, Carestream, Carpe Diem, Cobalia, COWI, Dan Bunkering, Dana Lim, Danfoss, Danpo, Dansk Byggeri, Dansk Gartneri, Dansk Standard, Danske Commodities, Dantherm, Dantherm Group, Deep, Diakonissestiftelsen, Dansk Kabel TV, Eilersen, Ellepot, EmbaX, Essilor, Farusa, Goodvalley, Grundfos, Hairstetics, Hempel, Hilding & Ekens, Hjemmeværnet, Implantatklinik, Insatech, James Hardie, Juul, JW / Swedoos, Kieser Training, Kompass Bank, Kunde&Co, Kungliga Operan, Lastbilnett, Mansoft, Navadan Nedschroef, Nemco, Orifarm, Oxyguard, Premiær IS, Pressalit, Reckitt Benckiser, Rhode Nielsen, Ricoh, Roskildekongrescenter, Schoeller, Schulstad competition, Senseo, Sensonic, Sidel, SIG, Smiledesigns, Sobi, TAF, Tandprotetikeren, Teamtankers, Trackunit, TrustZone, Tvilum, Tycho Brahe Planetarium, Velas, VSV, Water

SKILLS

Project Management

Scrum

Google Analytics

Strategic Planning

C#

HTML

ASP.NET

Umbraco

Word press

Requirements Analysis

Technical Project

Management

Software Project

Management

Agile Software Development

CRM

Marketing Automation

HubSpot

Mailchimp

EDUCATION

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

HOLY ANGEL UNIVERSITY

MAY 2016



HOLY ANGEL UNIVERSITY

Denzel Florentino Manangu

OutSystems Developer

As an Outsystems Developer, I am responsible for the development, implementation, assessment, and recommendation of software and hardware solutions for the region. I also coordinate with other developers and digital professionals in delivering agreed output for external/internal clients and vendors upon established timeline, provide technical and functional support for the team and assume full ownership of ongoing tasks assigned.

 dmanangu@gmail.com

 Candaba

 linkedin.com/in/denzel-florentino-manangu-1b045920a

 09454122501

 09 January, 1999

 github.com/Dmanangu

WORK EXPERIENCE

Direct Sourcing Solutions Junior Software Developer

06/2022 - Present

Achievements/Tasks

- Responsible for the design, coding, testing, deployment and enhancement of software and hardware solutions for internal and external clients within the assigned region.
- Evaluate, assess and recommend software and hardware solutions.
- Develop software, architecture, specifications and technical interfaces.
- Design (technical), initiate and handle technical designs and complex application features.
- Build flexible data models and seamless integration points.
- Initiate and drive major changes in programs, procedures and methodology.
- Develop testable, bug-free & scalable code following SOLID principles and coding best practices.
- Work with the product team to design and develop robust technical solutions to their problems.
- Work in an agile environment and contributing to the overall function of the team.
- Assist team in handling ongoing tasks as required.

Direct Sourcing Solutions Junior Software Developer (Intern)

01/2022 - 04/2022

EDUCATION

Bachelor of Science in Computer Science Holy Angel University

06/2018 - 06/2022

SKILLS

Outsystems CSS HTML Communication
Leadership SQL Figma

ACHIEVEMENTS

Dean's Lister (Fourth Year, 1st Semester) (2021 - 2022)

Dean's Lister (Third Year) (08/2020 - 04/2021)

Dean's Lister (Second Year, 2nd Semester)
(12/2019 - 04/2020)

CERTIFICATES

Associate Reactive Developer (OutSystems 11)
(06/2023 - Present)

Associate Developer (ODC) (06/2023 - Present)

StackTrek: Full Code Foundation (11/2022 - 12/2022)
Credential ID: SEI-TC2211002-JTMX

DSS: Agile Training (09/2022 - 09/2022)
Participant

Microsoft's Tech Session Webinar (04/2021)
Participant

Huawei Connect Webinar (09/2020)
Participant

ORGANIZATIONS

League of Outstanding Programmers (LOOP-Holy Angel University) (08/2020 - 05/2021)
President

League of Outstanding Programmer (LOOP-Holy Angel University) (10/2019 - 03/2020)
Logistics Officer

INTERESTS

Software Development Web Development



HOLY ANGEL UNIVERSITY

Quiambao, John Kevin M.

Inocentes St. Brgy. Pag-aso, Mandaluyong City, Philippines

Mobile Number: +63 9179362075

Email: johnkevinquiambao@gmail.com



PROFESSIONAL EXPERIENCE:

Senior Network Engineer at Accenture Inc

May 2021 – Present

- Acts as the Network Architect for the SDWAN and Wireless Migration
- Lead the design and implementation of the overall SDWAN solution from MPLS
- Lead the design and implementation the wireless migration to Cloud (AWS) based WLC with over 700 APs
- SME for Network security related incidents including but not limited to Palo Alto, Meraki MX, Juniper
- Acted as Lead in the Mobile Device Management (MDM) Migration support from AirWatch to Microsoft Intune
- Responsible in designing, security, deployment, and ease of use for VPN solutions
- Escalation support for customer WAN (Access line) including but not limited to direct internet access, L2/L3 MPLS IPVPN, MPLS RSVP, MPLS TE, Fiber and Copper line troubleshooting
- Extensive hands-on experience on network device provisioning, and troubleshooting
- Responsible in creating and updating network diagrams for all sites
- Demonstrate strong business process and project management skills, including setting goals and priorities, increasing efficiency.
- Responsible for keeping track of the day-to-day operation of client networks, making sure they are secure and running efficiently
- Supervise a team of network technicians and administrators, providing guidance and support to resolve problems quickly and efficiently

HOLY ANGEL UNIVERSITY

Network Deployment Engineer at Astreya Partners Inc

Oct. 2019 – January 2021

- Responsible for designing, procuring, configuring, and deploying Cisco (IOS-XE/IOS-XR) and Juniper routers/switches (Mx5/Mx80 hardware model) in regional offices
- Deploy network solutions and hardware turn up in offices
- Provide corporate office network deployment and implementation
- Engineer and implement office pre-build work in support of regional build rooms
- Responsible in making sure that network projects are delivered before the deadline
- Coordinate with the infrastructure team in all aspects of network equipment installation, power, cooling and cabling
- Ensure that network devices are hardware and software compliant
- Responsible in making sure that change requests (CRs) are executed swiftly and accurately without any network downtime
- Support various teams in developing network standards and network projects close out procedures
- Work with relevant teams in all aspects related to equipment installation, service testing and problem resolution
- Coordinate with Cisco TAC regarding any issues/bug that is related to hardware or software

Senior Network Engineer at CEVA Logistics

Oct. 2018 – Oct 2019

- Plan, schedule, and implement network upgrades/changes for remote sites and Data Centers across the Globe
- Design, provision, and lead the migration of remote sites or Data Centers from MPLS into SDWAN
- Identify and resolve mission critical production network related issue within agreed SLA
- Manage network operations for data communications, including scheduled maintenance, upgrades, and capacity requirements
- Ensure that network infrastructure is properly documented and meets architecture designs and standards
- Monitor and maintain all the network devices (Routers, Switches, Wifi Controllers, Etc.) and any other related equipment and services.
- Ensure global network support and maintain high system availability collaboration with external carriers



HOLY ANGEL UNIVERSITY

Network Operation Center (NOC) Engineer at PCCW Global

Oct. 2017 – Sept. 2018

- Part of Global Service Operation Center (GSOC) responsible for investigation and troubleshooting of any network problem and supports MPLS L2VPN/L3VPN as well as Global Internet circuits with emphasis on MPLS and IP based networks that span across the Globe.
- Responsible for identifying and mitigating DDoS attacks using IDS/IPS systems using Peakflow.
- Designing network configuration, directing system installation, defining, documenting, and enforcing best practice standards.
- Investigate and troubleshoot Routing and Switching issues with emphasis on Cisco devices
- Troubleshooting business critical network outages across the whole PCCW global network; scheduling network upgrades; collaborating with network architects on network optimization
- To identify and resolve customer network problems and coordinate with internal / external parties for smooth execution of jobs in order to ensure Service Level Agreements are met.
- Responsible for monitoring the day-to-day network operation for the Network Infrastructure of PCCW Global including performance monitoring and bandwidth monitoring of high bandwidth trunk links.
- Ability to utilize monitoring tools like Nagios, Cacti, MRTG, Whats up Gold and HP network management software.

Network Engineer / Level 2 Service Assurance Engineer at TPG Sept.2015 – Sept 2017

- Technical Trainer / Escalation point for all Level 1 Service Assurance Engineers for issues from OSI layer 1 to layer 4 in a Multi-vendor ISP environment.
- Point person for critical issues, which includes but not limited to VPN routing, Multiple Sites, Escalated and SLA Breached, Key Accounts, CMS / Managed Equipment issues.
- Ability to access Provider Edge, Border router and Core routers to effectively investigate and rectify routing issues in a multi – vendor Internet Service Provider environment.



HOLY ANGEL UNIVERSITY

- Supported the following services: Copper (SHDSL, EFM, ADSL2+, VDSL), Ethernet / Ethernet over MPLS (EoMPLS), Fiber (Dark Fiber, GPON), Serial services (T1), 3G, NBN (FTTN, FTTB, FTTP)
- Responsible for handling faults for Fiber services such as Dark Fiber (Layer 1), PIPE (Layer 2), and PIPE Ethernet (Layer 3) services.
- Responsible for identifying, troubleshooting, and resolving Layer 1 to 4 issues for managed copper services.
- Liaise directly with Access Engineers, NOC Engineers, Provisioning Engineers, Firewall Team, Provisioning Engineers, Field Technicians, Account Managers, Project Managers, 3rd Party Carrier Engineers, Escalations Group and Client IT Managers.
- Responsible for monitoring customer's network equipment working with upstream carriers, handling network transitions, and running network monitoring systems 24/7.

Technical Support Consultant at Sutherland Global Services Sept. 2014 - March 2015

- Responsible for monitoring customer's network equipment working with upstream carriers, handling network transitions, and running network monitoring systems 24/7.
- Assist in providing network support to client devices
- Configuration and setup of wireless network
- Configuration and troubleshooting of email clients (Outlook, Thunderbird)

CERTIFICATES:

Cisco Certified Specialist – Enterprise Core (CCNP ENCOR):

Cisco ID: CSCO12425678
Registration ID: 392411711
Validation ID: 574918985

Cisco Certified Network Associate (CCNA):

Cisco ID: CSCO12425678
Registration ID: 303886523
Validation ID: 416203318

Aviatrix Certified Engineer (Multicloud Network Associate) – MCNA

ACE Certification Number: 2022-17487

Microsoft Certified: Azure Fundamentals (AZ-900)



HOLY ANGEL UNIVERSITY

AREAS OF EXPERTISE:

Network Engineering:

Professional knowledge and hands on experience of the following network concepts in an Internet Service Provider and Enterprise environment:

Routing:

- Exterior Gateway Protocols: BGP, Multi-protocol BGP (MP BGP),
- Interior Gateway Protocols: OSPF, EIGRP, IS-IS
- Virtual Routing and Forwarding (VRF/ VRF Lite)
- Multi-protocol Label Switching (MPLS) RSVP and Traffic Engineering
- Software-defined WAN (SDWAN)

Switching:

- First Hop Redundancy protocols: HSRP, VRRP, GLBP
- Link Aggregation (Etherchannel)
- Port Security
- Trunking protocol (ISL, 802.1q)
- STP / RSTP / MST / PVST+
- VLAN
- NAT/PAT
- Port-based Network Access Control (802.1x)

IP Services and Security:

- IP Security (IPsec)
- Generic Routing Encapsulation (GRE)
- IP SLA
- Dynamic Host Configuration Protocol (DHCP)
- Domain Name System (DNS)
- Palo Alto Next-Gen Firewall
- Prisma Access Secure Access Service Edge (SASE)

Hardware:

- Routers: Cisco ASR/ISR, Brocade, Alcatel Lucent, C9600



HOLY ANGEL UNIVERSITY

- Switches: Cisco Catalyst, HP switches, Nexus 7K and 9K
- Optical Line Terminal / Optical Network Terminal: Huawei, Netcomm
- Network Termination Unit: OneAccess, Netcomm, and Huawei, Cisco

EDUCATION:

Tertiary: Holy Angel University 2010- 2014

BS Information Technology Major in Network Administration

I hereby certify that the facts contained in the resume are true and correct to the best of my knowledge and belief.



HOLY ANGEL UNIVERSITY

Artificial Intelligence Expert



Personal Details

Name Arian N. Yambao
Contact No. 09328715351 [Mobile]
E-mail Address arianyambao@gmail.com
Address San Fernando, Pampanga, Philippines

Academic Qualification

BS Computer Science – Holy Angel University, 2014 - 2018

MS Computer Science – De La Salle University Manila, 2018 - 2021

Work Experience

Machine Learning Engineer, BoomAI (<https://boom.ai/>) (April 2022 – Present)

- Implement Machine Learning end-to-end cycle pipelines that serve thousands of simultaneous prospects in many states of the United States
- Implement internal health check tools to assuring quality service availability of the AI products 24/7
- Verify Machine Learning techniques implemented by data scientists for automation processes
- Apply state-of-the-art deep learning components and tools for efficient deployments
- Monitor and improve current call transfer models

Machine Learning Engineer, MeldCX (<https://www.meldcx.com/>) (August 2021 – March 2022)

- Design and implement deep learning approaches in creating and improving existing products
- Use current state-of-the-art algorithms in implementing custom datasets
- Utilizes the use of ML Operations tools (Kubeflow, kfp)

Data Science Intern, Reesby <https://www.reesby.com.au/>) (November 2021 – March 2022)

- Applies research and development using current and emerging AI solutions
- Tackles and solves problems related to recruitment processes

Part time Assistant Professor, Holy Angel University (<https://www.hau.edu.ph/>) (August 2021 – November 2021)

- Teaches computer science / IT related subjects
- Participates as panel on ensuring quality AI research by the students in their thesis

Part time Machine Learning Engineer Consultant, Wizy (<https://wizy.io/>) (April 2021 – June 2021)

- Collect, design, and integrate necessary data engineering and feature engineering for the required data transformation of images
- Develops vision models for specific project needs on Tensorflow
- Works parallel with the mobile development team for the deployment of mobile-ready machine learning models

HOLY ANGEL UNIVERSITY

Artificial Intelligence (AI) Research Engineer, Senti (www.senti.com.ph) (June 2020 – July 2021)

- Became a consultant and AI engineer on a category classifier project for a local Airline company client
- Became part of the first official research and development team in the company and began experimenting along with the team on the new algorithm in NLP, BERT
- Migrated previously built NLP solutions to GCP's AI Platform + Cloud Run
- Helped with the team's requirement on the Google ML Partnership Demos
- Developed an internal Tagalog morphological preprocessing tool and main authored its introductory paper to International Conference on Asian Language Processing (IALP) 2020

Data Engineer, Senti (www.senti.com.ph), (October 2019 – May 2020)

- This work experience mainly revolved around a project with a big commercial television and news media network in the Philippines
- Managed day-to-day data and storage to be used by the team in either blob storage or online Jupyter Notebook (Kubeflow)
- Took part in the planning and architectures of the ML solutions to be used in a hyper-localized news delivery algorithm and "smart tagging" (automatic news category tagging)
- Implemented an end-to-end ML pipeline to a client with Kubernetes and Kubeflow in their AWS Platform which also includes retraining
- Built the API and ensured strict calling parameters for the developed AI solutions

Artificial Intelligence (AI) Solutions Engineer, Senti (www.senti.com.ph), (April 2018 – September 2019)

- Explored the capabilities of client facing and solution building
- Engaged in building an internal product regarding a localized sentiment classifier
- Took part as a co-author in writing the "Use of Word and Character N-Grams for Low-Resourced Local Languages"
- Discovered currently existing technologies in building AI solutions in the Google Cloud Platform
- Familiarized with chatbot building and deployment using Dialogflow

Artificial Intelligence (AI) Developer Assistant, Senti (www.senti.com.ph), (December 2017 – March 2018)

- Learned the fundamentals on AI from experienced practitioners (industry and academe)
- Gained knowledge and experiences in using necessary tools and frameworks like Tensorflow
- Assisted on building a localized Philippine Language Classifier as a project from Department of Science and Technology

Recent Research Project

Feedforward Approach to Sequential Morphological Analysis in the Tagalog Language

Role:

Lead-Author

Project Duration:

September 2020 – December 2020

Project Description:

Creation and analysis of a neural network model approach towards Tagalog morphology (morphosyntactically rich language) and may be applied in other morphosyntactically rich languages in understanding its underlying inflections with the use of character representation. Saw an improved accuracy of 0.93 towards its rule-based counterpart. The paper was published and presented at IALP 2020 in Kuala Lumpur, Indonesia.



HOLY ANGEL UNIVERSITY

Use of Word and Character N-Grams for Low-Resourced Local Languages

Role: Co-Author
Project Duration: May 2018 – November 2018
Project Description: Creation of a Philippine language classification dataset benchmarked using Naïve Bayes-based models, Random Forest, and Linear Support Vector Machines. Final F1 score of 0.97 using Linear SVM. The paper was published and presented at IALP 2018 in Bandung, Indonesia.

AVAS: A Vehicle Alarming System for Accident Detection using Raspberry Pi

Role: Co-Project Lead
Project Duration: June 2017 – October 2017
Project Description: AVAS suffices the incidents where a vehicle accident occurs and there is a lack of witnesses that will report to the nearest authorities in the vicinity of the accident, providing victims with a possible early rescue response. It also allows the authorities to summarize reports and possibly give a report on which areas are prone to accidents.

Recent Conferences and Trainings Attended

(Event Name, Event Date, Organizer, Venue)

International Conference on Asian Language Processing (IALP) 2020, December 4, 2020 – December 6, 2020, Chinese and Oriental Languages Information Processing Society (COLIPS), Kuala Lumpur, Malaysia

Technical Skills

Programming: Python

AI Related: Natural Language Processing, Natural Language Understanding, Deep-Learning, Machine Learning, Scikit-learn, Pandas, Tensorflow, Keras, PyTorch, Classification, Data pre-processing

Platform Integrations: Kubernetes, Kubeflow

Database: MySQL (SQL), MongoDB (No SQL), Firebase (No SQL)

Cloud Platforms: Google Cloud Platform (GCP) / Amazon Web Services Platform (AWS)

Certifications

(Certificate, Year, Organizer)

Certified Google Cloud Associate Engineer, 2019, Google



HOLY ANGEL UNIVERSITY

Appendix V Editor's Note

ENGLISH EDITING CERTIFICATION FORM

This is to certify that the undersigned has edited the final revised manuscript of this Output

Prediction for Academic Performance Level of Graduating Elementary Students

prepared by

Baltazar, Gabriel Paolo I.
Reyes, Lee Randell C.
Sumang, Pauline Yvonn V.
Yap, Carl Gabriel S.

and has found it complete and satisfactory with respect to grammar, organization, and APA 7th edition format and style as prescribed by the University Research Office of Holy Angel University

MARIA CRISTINA C. NOGOV, LPT, MAED
Grammar and APA Editor

October 17, 2024



HOLY ANGEL UNIVERSITY

Appendix W University Plagiarism Certificate



HOLY ANGEL UNIVERSITY RESEARCH OFFICE

CERTIFICATION

This certifies that the research paper entitled "**Prediction for Academic Performance Level of Graduating Elementary Students**" by Pauline Yvonn V. Sumang, Gabriel Paolo I. Baltazar, Lee Randell C. Reyes and Carl Gabriel S. Yap, is essentially clear of plagiarism, as subjected to Turnitin review. Scanned and reviewed by the University Research Office on October 21, 2024, with the following details:

Total number of words	20868
Final rate	17%

Certified by:


DR. RICHARD L. FIGUEROA
Director, University Research Office



Appendix X Researchers' Curriculum Vitae



About Me
I study computer science and am 21 years old. I think of myself as a well-organized learner. I am looking to complete this course and have my first professional experience.

Contact
 976-573-7246
 gpaolobaltazar@gmail.com
 22, San Juan, Lubao, Pampanga

Personal Info
Birthday: April 14, 2003
Birthplace: Pampanga
Nationality: Filipino
Religion: Catholic
Civil Status: Single

Language
Tagalog • Kapampangan • English

Gabriel Paolo I. Baltazar

Researcher

Education

Maccim Royal Academy

Pasbul, Lubao

2009-2015

Guagua National Colleges

Guagua, Pampanga

2015 - 2021

Certificates

Cisco Network Academy 2021

(Computing Fundamentals)

Cisco Network Academy 2021

(Campus Network Architecture)

Cisco Network Academy 2023

(Information Assurance and Security)

BlockChain Conference 2024

Achievements

Dean's Lister

(1st semester S.Y. 2021-22)

Dean's Lister

(2nd semester S.Y. 2022-23)

Dean's Lister

(1st semester S.Y. 2023-24)

Dean's Lister

(2nd semester S.Y. 2023-24)



About Me

I am a 21-year-old Computer Science student. I consider myself an orderly student. I am looking forward to finishing this course and having my first work experience.

Contact



999-517-6162



lerandcruzreyes@gmail.com



7032 Purok 7 Brgy. Mining,
Angeles City

Personal Info

Birthday: May 22, 2003

Birthplace: Angeles City, Pampanga

Nationality: Filipino

Religion: Catholic

Civil Status: Single

Language

Tagalog • Kapampangan • English

Lee Randell C. Reyes

Researcher

Education

Achievers Special Education Center

Angeles City, Pampanga
2009-2015

Chevalier School

Angeles City, Pampanga
2015 - 2021

Certificates

Cisco Network Academy 2021

(Computing Fundamentals)

Cisco Network Academy 2021

(Campus Network Architecture)

Cisco Network Academy 2023

(Information Assurance and Security)

BlockChain Conference 2024

Achievements

Dean's Lister

(1st semester S.Y. 2021-22)

Dean's Lister

(2nd semester S.Y. 2022-23)

Dean's Lister

(1st semester S.Y. 2023-24)

Dean's Lister

(2nd semester S.Y. 2023-24)

HOLY ANGEL UNIVERSITY



About Me

I am a 21-year-old Computer Science student. I have developed strong leadership, problem-solving, and programming skills. I am eager to apply my knowledge, learn more, and contribute to innovative projects in a professional setting.

Contact



0949-815-4023



yvonnsunmang@gmail.com



Ninabel Subdivision, Barangay Dau, Mabalacat, Pampanga

Personal Info

Birthday: January 15, 2003

Birthplace: Angeles City, Pampanga

Nationality: Filipino

Religion: Catholic

Civil Status: Single

Language

Tagalog • Kapampangan • English

Pauline Yvonn V. Sumang

Researcher

Education

Mary Help of Christians School

Mabiga, Mabalacat City, Pampanga
2008 - 2019

Holy Angel University

#1 Holy Angel Avenue, Sto. Rosario, Angeles City
2019 - 2025

Certificates

Cisco Network Academy 2021

(Computing Fundamentals)

Cisco Network Academy 2021

(Campus Network Architecture)

Cisco Network Academy 2023

(Information Assurance and Security)

BlockChain Conference 2024

Achievements

With High Honors

(2nd semester S.Y. 2020-2021)

President's Lister

(1st semester S.Y. 2021-2022)

Dean's Lister

(2nd semester S.Y. 2021-2022)

Dean's Lister

(1st semester S.Y. 2022-2023)

President's Lister

(2nd semester S.Y. 2022-2023)

Dean's Lister

(1st semester S.Y. 2023-2024)

Dean's Lister

(2nd semester S.Y. 2023-2024)





About Me

I am a Computer Science student who enjoys handling data and is looking for my first job experience

Contact



992-607-7121



yelyap56@gmail.com



274, Zone 5 San Matias,
Sta.Rita

Personal Info

Birthday: December 27, 2002

Birthplace: Manila

Nationality: Filipino

Religion: Catholic

Civil Status: Single

Language

Tagalog • Kapampangan • English

Carl Gabriel S. Yap

Researcher

Education

Guagua National Colleges

Guagua, Pampanga
2009-2018

Holy Angel university

Angeles City, Pampanga
2019-2025

Certificates

Cisco Network Academy 2021

(Computing Fundamentals)

Cisco Network Academy 2023

(Campus Network Architecture)

Cisco Network Academy 2023

(Information Assurance and Security)

BlockChain Conference 2024

Achievements

Dean's Lister

(1st semester S.Y. 2021-22)

Dean's Lister

(2nd semester S.Y. 2022-23)

Dean's Lister

(1st semester S.Y. 2023-24)

Dean's Lister

(2nd semester S.Y. 2023-24)