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**Proposal**

**For**

**Year Project**

**Bachelor of Science in Information Technology**

***Project Name: Snake Game***

**Submitted by**

**Kinzang Wangchuk**

**12190062**

**Read carefully before filling the form.**

1. Please do not alter the layout of the application form. Information must be filled in the spaces provided, under set format.
2. Guidance notes in various fields should not be deleted.
3. Required information should be duly filled in the specified fields.
4. Required heads/fields which are not relevant to the project should be marked **N/A** (Not Applicable) or left blank and should not be deleted.

**Guidelines and Forms**

**Submission Procedure**

Duly filled proposal forms completed in all respects should be submitted in form of soft copy and a hard copy to project guide and project coordinator. On receipt of the applications the proposals will be evaluated by reviewer panel and proposal would then be defended by student groups. The project group may need to revise the proposal in light of the evaluator’s recommendations.

**For further information, please contact:**

Project Coordinator

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**Note:** To update the table of contents, right click in the table and select ‘*update field*’ and then select ‘Update Entire Table’.

**Application for Final Year Project**

# 1. Project Identification

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| --- | --- | --- | --- |
| Reference Number: | | | |
| (for office use only) | | | |
| Project Title: | | | |
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| Project Internal Guide: | | | |
| Name: |  | | |
| Designation: |  | | |
| Organization: |  | | |
| Mobile # : |  | Tel. # : |  |
| Email: |  | | |
| **C1. Project External Guide:** | | | |
| Name: | **NA** | | |
| Designation: |  | | |
| Organization: |  | | |
| Mobile # : |  | Tel. # : |  |
| Email: |  | | |
| **C2. Student Group Lead:** | | | |
| Name: |  | | |
| Roll No: |  | | |
| Department: |  | | |
| Mobile # : |  | Tel. # : |  |
| Email: |  | | |

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| Organizations Involved in the Project: *(Please identify all affiliated organizations collaborating in the project, and describe their role/contribution to the project.)* | | | |
| **D1. Industrial Organizations:** | | | |
| *#* | *Organization Name* | | *Role / Contribution* |
|  | *NA* | |  |
| **D2. Academic Organizations:** | | | |
| *#* | *Organization Name* | *Role / Contribution* | |
|  |  |  | |
| **D3. Funding Organizations:** | | | |
| *#* | *Organization Name* | | *Role / Contribution* |
|  | *NA* | |  |
| Key Words: *(Please provide a maximum of 5 key words that describe the project. The key words will be incorporated in our database.)* | | | |
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| Research and Development Theme:To provide an interactive and user interface platform to interested user to play game. | | | |
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| Project Status: (Please mark ☑)  ☑ New Modification to previous Project  Extension of existing project | | | |

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| Project Duration: | | |
| Expected Starting Date: | 3rd March | |
| Planned Duration in months: | 5 months | |
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# 2. Scope, Introduction and Background of the Project

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| Scope of the Project:System ScopeTo develop a mobile application with following features:Offline based gameSettings: it containsLevel SelectionSound selectionRestartNew Game.User ScopeThe scope of this project is mainly for the interested users. |
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| Introduction (Project Background and Literature Review, Current State of the Art): *(Detailed summary of what all has been done internationally in the proposed area quoting references and bibliography. Please note that this section demonstrates the depth of knowledge of the project team and builds the confidence of the evaluators about capability of the team in achieving the stated objectives.)*  *(Please describe the current state of the art specific to this research topic.)*  **Background**  Snake first appeared in 1997 on the Nokia 6110, along with the games Logic and Memory. It was programmed by Taneli Armanto, a design engineer in Nokia. The concept originated from the 1976 arcade game 'Blockade', developed and published by Gremlin.  Snake is the common name for a video game concept where the player maneuvers a line which grows in length, with the line itself being a primary obstacle. The concept originated in the 1976 arcade game *Blockade*, and the ease of implementing *Snake* has led to hundreds of versions (some of which have the word *snake* or *worm* in the title) for many platforms. After a variant was preloaded on Nokia mobile phones in 1998, there was a resurgence of interest in the snake concept as it found a larger audience.  **Literature Review:**  This proposal is organized into several subsections. The objectives of proposing the snake game for minor project is justified by the simplicity of the game. This will allow us to focus on more advanced topics like multiplayer functionality and Snake – computer controlled opponent.  Information about some of the existing snake games have been collected from the internet. Lots of variants of traditional snake game exists but none of these game provide the experience of a commercial multiplayer games. The introduction of Snake is unique to this game and will offer an adventurous experience to the players.  A simple block diagram has been presented here which gives some insight into the structure of the game. This block diagram is for illustration purpose. The final block diagram will be more elaborate and will contain all the components of the game.  The scope of this project has been discussed taking into account its commercial value and educational value. The educational value of this project will allow us gain insight of the networking concepts used in multiplayer game. Moreover the Snake functionality will provide us a platform to make further research into the field of “Intelligent Games”.  A rough project schedule has been presented to help us complete the project in time. Unit of time used in the schedule is “Weeks” as the final date for submission of minor project has not been finalized.  Nibbler (1982) is a single-player arcade game where the snake fits tightly into a maze, and the gameplay is faster than most snake designs. Another single-player version is part of the 1982 Tron arcade game, themed with light cycles. It reinvigorated the snake concept, and many subsequent games borrowed the light cycle theme.  **Current State Of Art**  Some of the snake game is free on websites but while we are playing, they charges data which is not appropriate for all users. So if we make snake game as mobile application it is there will be more feasible for many users. Most of the people preferred offline game than online. |

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| Challenges: *(Please describe the challenges, specific to this research topic, currently being faced internationally.)* |
| Challenges we could face when developing the App:  1. Performance: To make our app Responsive and smooth as per users expectation might be one of the biggest challenges for us.  2. Security: Since the android is Open source which invites more security flaws. Developer and devices manufacturers both can customize as per their need. As user increases and due the openness this platform is more vulnerable to security flaws. Due to this flaws we might face challenges to Keep source code safe from hackers.  3. Software Fragmentation: Google released a new version of android every year with different new features and enhancement but the adoption rate of latest version of android remain slow. For instance, Android 6.0 Marshmallow currently has a higher market share than Android 7.0 Nougat and Android 8.0 Oreo. Hence, the we the developers have to target multiple versions of Android while developing mobile apps. We often find it challenging to make the app leverage the features provided by the latest as well as earlier versions of Android operating system.  4. Marketing: One of the major challenges of this project is market place. Android has more more than 8 million apps on its market place today and getting our app among them is a challenge. |
| Motivation and Need: *(Please describe the motivation and need for this work.)* |
| Now world had been technologized and most people had been lead the life by technologies. Some are people busy in their works and some are engage in games. Some are not engaged in any field so for them, we want to provide platform to engage and take part in games, enjoy and have a fun after playing snake games. |

# 3. Aim and Objectives of the Project

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| *(Please write the actual aim of your project. Also, describe the measurable objectives of the project and define the expected results. Use results-oriented wording with verbs such as ‘to develop..’, ‘to implement..’, ‘to research..’, ‘to determine..‘, ‘to identify..’ The objectives should not be statements and should not include explanations and benefits. The objective should actually specify in simple words what the project team intends to achieve (something concrete and measurable/ deliverable). Fill only those objectives that are applicable to the proposed project.)* |
| AIM: This game aims to change the way people think of traditional snake game. It will offer the experience of commercial multiplayer games to the player retaining the simplicity of traditional snake game.  OBJECTIVES :  The major objectives of this project are:  1. Create a snake game that will have all the functionality of traditional snake games.  2. Introduce multiplayer functionality in the game that will allow several players to play a game simultaneously. It should give the experience of real time games to the players.  3. Introduce Snake (unique feature of this game) to make the game more challenging and interesting. |
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# 4. Methodology

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| Development / Research / Test Methodology: *(Please describe the technical details and justification of your development and research plan and test plan and testing strategies. Identify specialized equipment, facilities and infrastructure which are required for the project and their utilization plan. The block diagrams, system flow charts, high level algorithm details etc. have to be provided in this section. Also, describe the overall methodology to be used for the particular research topic)*.  **Problem Statement**  The traditional snake game does not offer much challenge to its players. It is impossible to bring out the best playing skill of the players unless a challenge is offered to them. The players loose interest in the game after playing it for some time do to lack of challenge. Hence when the people hear about snake game, they quickly form an image of old age arcade game.  The absence of powerful graphical resources and weak support for networked application in the programming language is one of the factors that has delayed the development of a interesting and challenging version of snake game.  **Literature review**  This phase discuss about the past research papers related to specified topics. it is written to have strong backbone to support the specified problem. Writing a literature review involves finding relevant publications (such as books and journal articles), critically analysing them, and explaining what you found.  **Requirement gathering**  After reviewing enough papers and gathering enough information about how and what to do for requirement gathering, In this phase the team will understand the problem in detail and conduct various meetings and interviews, brainstorming and conducting relevant survey. Along with the requirement gathering, the project team will also initiate the Documentation process. The output of this phase will be the SRS document which will act as the input for the design phase.  **Design**  In this phase the team will design the database, app icon user interface and the system design. It also helps in specifying hardware and system requirement.  **Implementation**  Implementation phase comprises of development of the application where various features of the app will be developed. During the development, every feature will be tested by the team to insure the functionality of each component. The development of the system will be based on the prototyping method for improving the effectiveness and efficiency of the app and welcome new requirements.  **Testing**  In order to ensure the functionality of each component, every component will undergo unit testing. The tested component will later undergo integration testing to ensure proper functioning of the app. If there are any issues encountered during the testing phase, the team will resolve the issue and test again.  **Development Model**  C:\Users\Lenovo\Downloads\Iterative.png  **I choose iterative incremental model in my project because of following features:**   * 1. You can develop prioritized requirements first. * 2. Initial product delivery is faster. * 3. Customers gets important functionality early. |
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| Project Team: | |
| ***Title / Position*** | ***Number*** |
| Project Internal Guide |  |
| Project External Guide |  |
| Student Team Members |  |
| Others (please specify) |  |
| Add more rows if required |  |

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| Project Activities: *(Please list and describe the main project activities, including those associated with the transfer of the research results to customers/beneficiaries. The timing and duration of research activities are to be shown in the Gantt chart in Section 8.)*  Installation of software and tools  Installing of android studio and JDK (java development kit) for development.  Literature review  The project will be doing literature review for the feasibility study. Literature review includes Paper and Related mobile App review;  Requirement gathering  Requirement gathering includes gathering of information on software development and referring book and watching tutorials related to android application development.  Design  Design phase includes designing a database, designing user interface, app logos and understanding the functionalities, flow of information, keeping the design concepts in mind.  Development  The development phase includes coding using android studio and will initiate the following prototype model which will ensure low risk of project failure and greater flexibility of adjusting to the changing need and requirements. Testing After the development phase, “Snake Game” application will undergo testing phase where the developed app will be integrated to check its functionalities. Final presentation should be documented. |
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| Key Milestones and Deliverables: *(Please list and describe the principal milestones and associated deliverables of the project. A key milestone is reached when a significant phase in the project is concluded, e.g. selection and simulation of algorithms, completion of architectural design and design documents, commissioning of equipment, completion of test, etc.) The timing of milestones is also to be shown in the Gantt chart in Section 8.* | | | |
|  | | | |
| *No.* | *Elapsed time from start (in months) of the project* | *Milestone* | *Deliverables* |
| 1. | 10/02/2021-15/03/2021 | Topic selection, problem statement, brain storming, literature review. | Writing project proposal |
| 2. | 16/03/2021-27/03/2021 | Requirement gathering, ,analysis, design | SRS document, ER diagram, database design, User Interface Design , UML Deign |
| 3. | 28/03/2021-30/04/2021 | Development and coding | Source Code and functional features implemented. |
| 4. | 1/04/2021-9/5/2021 | Testing | Test Case |
| 5. | 10/05/2021-18/05/2021 | Complete Development and testing | Complete android App |
| 6. | 19/05/2021 | Final Documentation | All document combined and ready |
| (Please add more rows if required.) | | | |

# 5. Benefits of the Project (Expected output/outcomes):

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| The final version of the proposed game will deliver the following features:  1. A game that will retain the simplicity of snake traditional snake game and contain attractive graphics and user interface to attract the players.  2. The real time experience of commercial multiplayer games will be available in the snake game that will allow more than one players to play a game simultaneously over a network. |
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# 6. Risk Analysis/Feasibility

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| Risks of the Project: (Please describe the factors that may cause delays in, or prevent implementation of, the project as proposed above; estimate the degree of risk.)  (Please mark ☑ where applicable) Low Medium High  Technical risk ☑  Timing risk ☑  Budget risk ☑ |
| A1. Comments(Describe the risk): |
| **Technical risk:**  • Our project has medium technical risk because we don’t have devices that supports android studio to carry on our project.  **Timing risk:**  • Have to spend time in doing research, designing, learning android and developing the application.  • Not being able to achieve the milestones due to coinciding college programs with the project schedules. • Difficult to manage time between study hours and project development.  **Budget risk**  • We don’t have budget risk because we don’t have to buy any software or technology. Our project can be done using free software available on internet. |
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# 7. Project Approval Certificate

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| *(Approval of Project Proposal by the Competent Authority (Department Chairman) and Project Review Team is mandatory before the start of project execution****.****)*  ***Project Review Team:***  Sl # Name Signature                  (Please add more rows if required.)  ***Project Coordinator***  Name:  Designation:  Email:  Date: Signature:  ***Competent Authority – Head of Department***  Name:  Designation:  Email:  Date: Signature  & stamp: |

# 8. Reviewers Panel Comments

# 10. Project Schedule / Milestone Chart /Work plan

*(Project schedule using MS-Project (or similar tools) with all tasks, deliverables, milestones, clearly indicated are preferred. Task should be measured in terms of hours)*

# 13. Report Writing Guidelines

*(Project report will be written under the specified guidelines.)*

# Bibliography

Bodnar, J. (n.d.). Java snake. Retrieved March 11, 2021, from https://zetcode.com/javagames/snake/

Google search. (n.d.). Retrieved March 11, 2021, from https://www.google.com/search?q=iterative%2Bincremental%2Bmodel&oq=iter&aqs=chrome.0.69i59l3j0l2j69i57j0j69i60.13770j0j7&sourceid=chrome&ie=UTF-8

Snake (video game genre). (2021, February 27). Retrieved March 14, 2021, from https://en.wikipedia.org/wiki/Snake\_(video\_game\_genre)